10¢ A COPY

The OIL WEEKLY

Exclusively Devoted To The Production and Transportation of Oil and Gas

April 5, 1929 **Volume 53. No. 3**

Mid-Continent and Over-seas operators prefer Wilson Center-latch Elevators because of the ease in operation. For running casing and drill pipe two types are available,—the Extra Heavy and the Double Extra Heavy. For tubing three types are available,—the Extra Heavy, Double Extra Heavy (for deep wells) and the Light Weight (for shallow wells). Each embodies the Spring-latch. *First in Safety, Strength, Speed and Convenience.*

Oil Tools Division
of Byron Jackson Co.

2150 E. Slauson Avenue, Los Angeles, California
Succeeding Wilson & Willard Mfg. Co., Wilson Oil Tools Corp., Rotary Disc Bit Co., U. S. Tool Co., and Craig Oil Tool Co.

Tulsa, Okla. (Warehouse)
215 E. Brady St.

Houston, Texas
616 Pub. Nat. Bank Bldg.

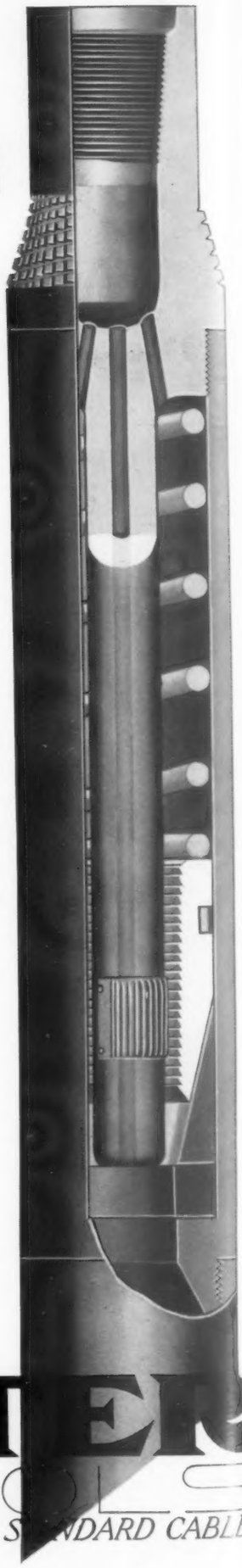
Fort Worth, Texas
814 Dan Waggoner Bldg.

New York City
1245 Graybar Bldg.

The New

HINDERLITER

Rotary Eccentric Circulating and Unscrewing Overshot



Comprises Necessary Factors

HINDERLITER

HONEST TOOLS

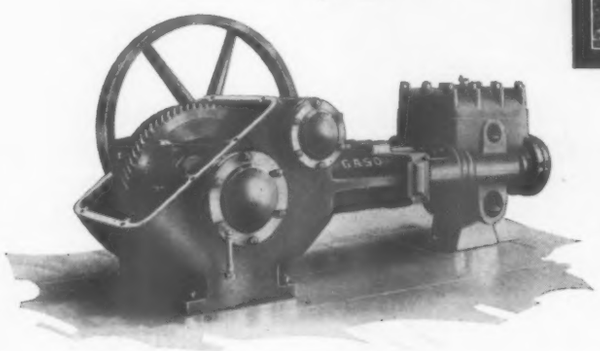
ROTARY *STANDARD CABLE*

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year, 10 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1897.

HUSKY!

Specifications reveal Inherent Durability . . . . in the Fig. 1508 GASO PUMP

A Gaso Fig. 1508 Pump arranged for automatic operation with attention only at long intervals. Station near Drumright, Okla., of Shaffer Oil & Ref. Co. Pipe Line Department.



Capacity of Gaso Fig. 1508 Enclosed Power Pump with interchangeable liner fluid end varies from 63 barrels per hour at 800 pounds pressure, with 2½ inch liner, to 250 barrels per hour at 250 pounds pressure, with 5 inch liner.

Pump can be arranged (1) with pulley for belt drive, (2) direct connected to engine through flexible coupling, (3) for motor drive through silent chain, or reduction gears, (4) for "V" rope drive.

A STUDY of the specifications of the Gaso Fig. 1508 Pump reveals surpassing durability which is inherent with the design and construction.

Some of the features which mark this as a sturdy, smooth running pump, subject only to the very minimum amount of wear, are: Timken Roller Bearing pinion and main bearings; center drive with solid Herringbone gear; heavy, balanced, "H" construction, marine type connecting rods; removable, bronze backed bushing at crank end; dust proof crank case; positive, automatic lubrication.

Ask for all the details on this truly great pump.

GASO PUMP & BURNER MFG. CO.
Tulsa, Oklahoma
Texas Office—210 Petroleum Building, Fort Worth

GASO PUMPS
for every oil industry need

Say you saw it in The OIL WEEKLY

These Byron Jackson Multiplex pumps at Watson deliver crude oil, fuel oil, and gasoline to Los Angeles Harbor ten miles away. The compactness of this installation particularly commands attention. By means of manifold piping, the first four units alone can pump 250,000 barrels per day at 150 to 160 pounds pressure; 125,000 barrels at 300 to 320 pounds pressure and 62,500 barrels at 600 to 700 pounds pressure. Byron Jackson Multiplex centrifugal pumps in every test have always been found to pump oil and gasoline at the least cost per barrel.

SINCE 1872

BYRON JACKSON PUMP CO.

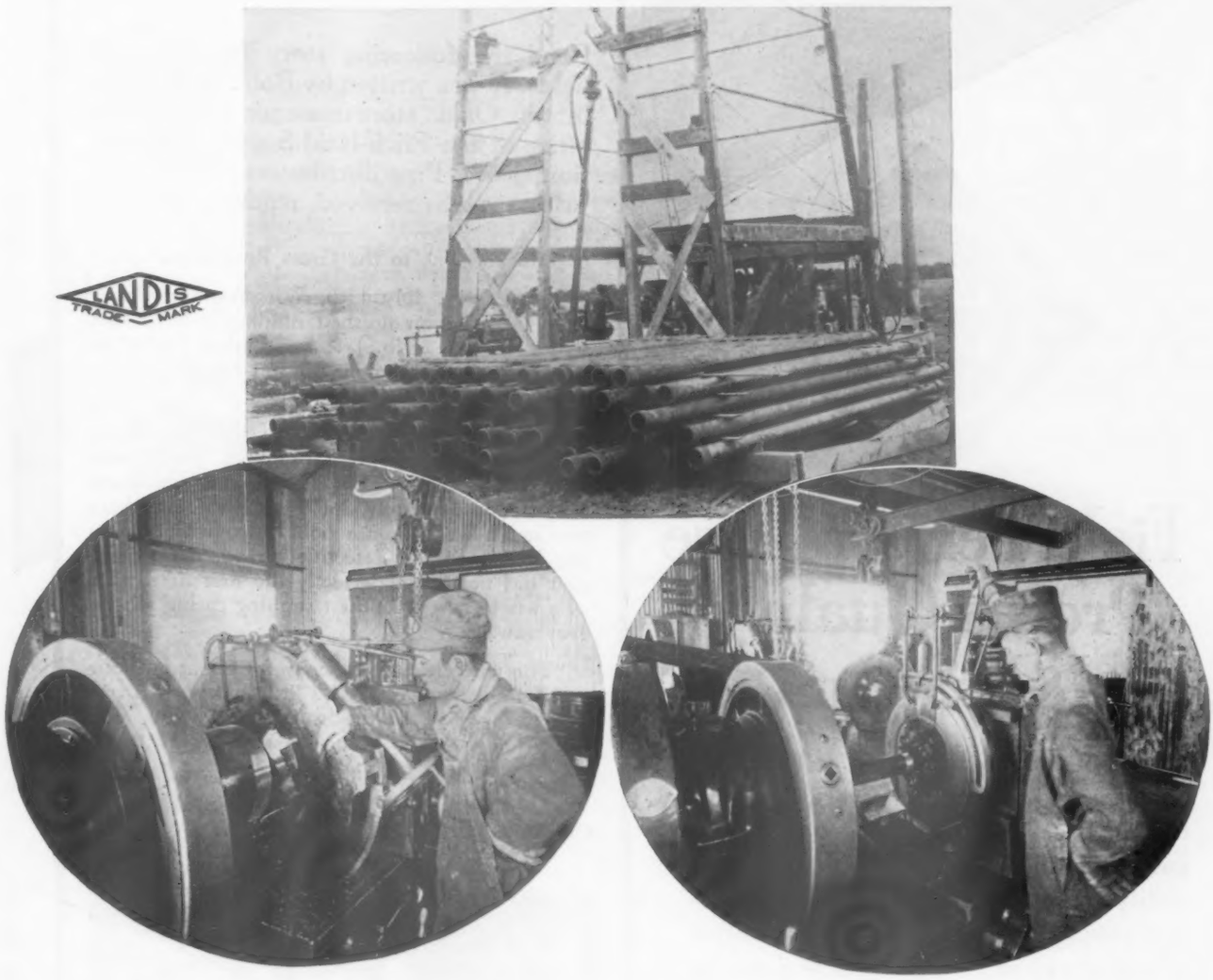
Factories: BERKELEY, Los Angeles, Visalia
Branches: San Francisco, Portland, Salt Lake, Dallas, Phoenix

BYRON JACKSON

CENTRIFUGAL PUMPS FOR EVERY SERVICE

There is a decided preference for Landis Pipe Threading and Cutting Machines in the Oil Country.

Why this preference? Does the Landis Machine cut better threads? More threads? Does it produce at a lower cost per thread?



The reason for preferring Landis Pipe Threading and Cutting Machines must be sound when the Marland Oil Company equips shops like this one with Landis.

Marland has competent engineers and shop men with years of experience and with a thorough knowledge of field requirements—men who know that a pipe machine for oil country work *must* produce good threads.

Landis *earns the preference* by producing *good threads faster* and *more economically.*

INVESTIGATE: Catalogue No. 31 "Landis Pipe Threading Machinery" upon request.

LANDIS MACHINE COMPANY, Inc.

WAYNESBORO, PENNA., U.S.A.

DETROIT OFFICES: 5928 SECOND BLVD.

Represented in the Domestic Oil Fields by: Colcord-Wright Machinery and Supply Co., St. Louis, Mo.; D. S. Mair Machinery Co., Houston, Tex.; Woodward Wight & Co., New Orleans, La.; Herberts Machinery & Supply Co., Los Angeles; Herberts Moore Machinery Co., San Francisco, Calif.; Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo.

J&L PIPE

Field Performance Proves Quality of J&L Seamless

Exceptional performance of J & L Seamless in the every day work of the oil regions backs up our claims of its unsurpassed quality and unvarying dependability. These characteristics are the direct result of J & L's ownership-control of every step in manufacture and nearly 80 years' experience in steel making.

Oil and Gas men, after using our Seamless Steel Casing under every operating condition, pass the word along that "there's no better seamless made than J & L."

J&L STEEL

"Our Hat is Off to J&L Seamless"

Read the following story from the oil fields. It was written by Bob Speck, Covington, Okla., store manager, to the Tulsa office of the Frick-Reid Supply Corporation, J & L Pipe distributors. The story, just as it was received, reads as follows:

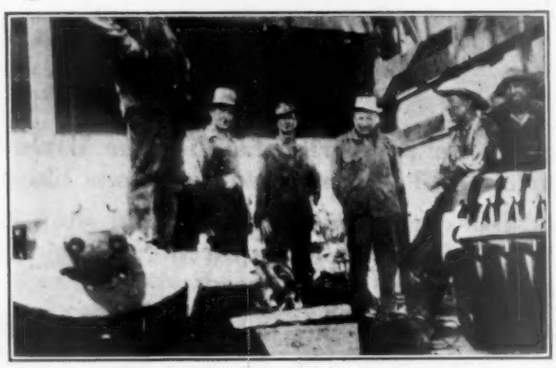
"Tell this one to the Grass Root boys.

"On Friday, July 13th, Wirt-Franklin Petroleum Corporation finished running a 6098 foot string of 6⅝" 26-lb. J & L Seamless Casing in their No. 1 Knecht in Sec. 21-18-4W, Logan County, Oklahoma.

"Compiling the statements of the Farm Boss, Addie Cope, and Harry Franklin, Tool Pusher, we find that in running 230 joints which averaged approximately 26' 6" to the joint, there was not a wobble or a bobble from the top to the bottom, not a defective thread, not a joint that did not 'stab' perfectly the first time, and, as a whole, 'the smoothest running casing job we ever saw.'

"The writer timed the crew for about an hour and found they averaged a little better than two joints every five minutes, starting all joints with chain tongs and finishing up with rotary tongs off the cat head on the rotary.

" OUR HAT IS OFF TO J & L SEAMLESS CASING."



Members of the crew on the Wirt-Franklin job described in the letter reprinted above.

JONES & LAUGHLIN STEEL CORPORATION
PITTSBURGH PENNSYLVANIA

A Letter from Harry G. Nye

The rugged construction and few working parts account for the simplicity and durability of these Nye Receding models. They do the work easily and efficiently.

No. 1 Nye Receding Pipe Threader, complete ....$9.60 net
West of Rocky Mountains $10.80

The No. 1A is the same as the No. 1, except that it is equipped with a ratchet for work where space is restricted.

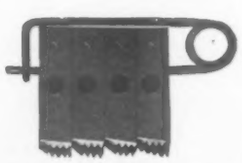
No. 1A Nye Receding Pipe Threader, complete ....$12.00 net
West of Rocky Mountains $13.50

NYE NO. 2
(Toledo Type)
Geared Threading Device Improved

Capacity 2½ in. to 4 in. inclusive. This tool has the same rugged construction as the No. 1 and No. 1A Nye Receding stocks. A ratchet handle and a spider hub-threaded for 1-inch pipe is furnished as standard equipment.

Net price complete.....$50.00
West of Rocky Mountains... 55.00

FREE TRIAL—ABSOLUTELY GUARANTEED



NYE (Toledo Type) Chasers Fit Nos. 1, 1A and 2 NYE (Toledo Type) Stocks

Each set is guaranteed in every particular. Will cut much easier than other similar dies.

No. 1, 1″ to 1½″..$ .75 per set net
No. 1, 2″ .....$1.25 per set net
No. 2, 2½″ to 4″..$3.60 per set net

TO THE OIL MEN OF THE U. S. A.

Fellow Citizens:

One of the most unappreciated members of society is the housefly. Yet, if it were not for the housefly, many a germ could not make a living, and many a doctor, either. If people only realized how many other people in this country do doctoring, or drive ambulances, or are employed by undertakers, they would let up on the housefly and stop interfering with one of our largest industries.

To me the housefly is one of the most faithful household pets. He will follow you around, no matter where you go. He wakes you in the morning by sitting on your nose, goes with you down to the dining-room, and invites all his friends in to meet you. If you get up a picnic, he goes right along. He is a lover of the wide open spaces, especially if they are in a screen door.

And at night he retires to your room with you, and hangs on the ceiling above you all night, upside down, to see that nothing happens to you, and to make sure he is present if anything does. Where is the man who would hang upside down from your ceiling all night for you? Not one. And he loves not only you but your horse and your dog and your sick calf, or what have you.

But man rewards the housefly by starting a swat-the-fly movement. Not the butterfly, which is simply a housefly which spends every cent it makes for clothes. Do they swat the fishing-fly? I should say not. They pay vast sums for them, and brag about them, and take them camping with them. But does man take the housefly camping with him? He doesn't have to. He's already there.

And the worst enemy of the housefly is the plumber. Right when the housefly is working the hardest to start an epidemic, the plumber spoils it all with his sanitary plumbing. Just when the housefly is looking forward to a pleasant summer, with lots of typhoid and malaria, the plumber spoils everything with his darned drainage. I bet if the housefly had his way not a plumber would ever have a Nye Tool to make his life happy and his job easy, as they do.

Still yours,

HARRY G. NYE.

Otherwise Known As

THE NYE TOOL & MACHINE WORKS

4120-30 Fullerton Avenue

Chicago, Ill.

(Copyright, 1928, by Harry G. Nye. All rights reserved.)

Nye Drop Forged Pipe Cutter

No. 1-A ⅛ to 1¼″.....$2.75 net
No. 2-A ¼ to 2″ ..... 3.30 net
No. 3-A 1 to 3″ ..... 5.50 net

Nye thin blade cutter wheel, made to fit all standard makes of pipe cutters, and guaranteed against breakage in use. Made both in smooth and knurled edge.

Nye Saunders Pipe Cutter

No. 1 ⅛ to 1″.....$2.00 net
No. 2 1 to 2″..... 3.00 net
No. 3 2 to 3″ ..... 7.33 net
No. 4 2½ to 4.....12.00 net
No. 5 4 to 6″.....18.67 net

For 18 Years An Emblem of Reliability---Efficiency

IN SOME INDUSTRIES, 18 YEARS IS BUT A DAY, but in the history of oil, it represents the most important phase in the entire development of this modern, efficient, Gargantuan industry.

18 years ago when Norvell-Wilder opened their doors for business, there were 13,768 wells drilled that year, but few of them were deeper than 2500 feet. Last year 22,301 wells were drilled at a cost of around $600,000,000. Many of these wells were over a mile deep.

NORVELL-WILDER HAS KEPT APACE WITH THIS SWIFT DEVELOPMENT. The four Norvell-Wilder stores are located in an area of a 600-mile radius within which is produced one-half of the oil of the world.

When you are in a hurry and need help quick, be it night or day, call a Norvell-Wilder man. When you are laying plans for future operations, call a Norvell-Wilder man.

Even though your purchases may be remote, consult him. He will gladly give you the result of his experience and training. His job is to serve the oil industry .... to serve YOU.

NORVELL WILDER SUPPLY CO.

BEAUMONT HOUSTON SHREVEPORT FORT WORTH

Say you saw it in The OIL WEEKLY

First ... in efficient, economical and dependable PERFORMANCE !

Smith Type "B" Demountable Drilling Bit.

Smith Type "B" Demountable Drilling Bit

With four distinctive features:

1—Winged section above bit which steadies bit in hole.

2—Serrated construction of bit blades permit easier penetration of either hard or soft formations.

3—Four-way construction of bit lessens the strain and fatigue to which drill pipe is subjected.

4—All bits are heavily set with a diamond substitute metal, and then hard-faced.

Maximum in speed, economy and reliability in operation are assured by this bit.

Smith Type "C" Coring Outfit Complete

Possesses the following outstanding features: Drop-forged high-carbon steel (not cast steel) throughout—to insure greater strength and durability. Renewable cutterheads (worn ones are replaced with new ones) for economy; no time and effort wasted in rebuilding jobs. Core-catcher in bit sub. Circulation close to teeth for cleaner cores. All cutterheads specially adapted for use with hard sets and hard facing metals. All four blades cut same gauge, thus keeping hole "out to gauge."

Guaranteed to take perfect cores—clean, uncontaminated and highly informative—in any formation that a fishtail or disc bit will penetrate.

In practically every oil field of the world, these two Smith Tools are considered first in efficient, economical and dependable performance.

H. C. SMITH

MANUFACTURING CO., INC.

LOS NIETOS, CALIFORNIA

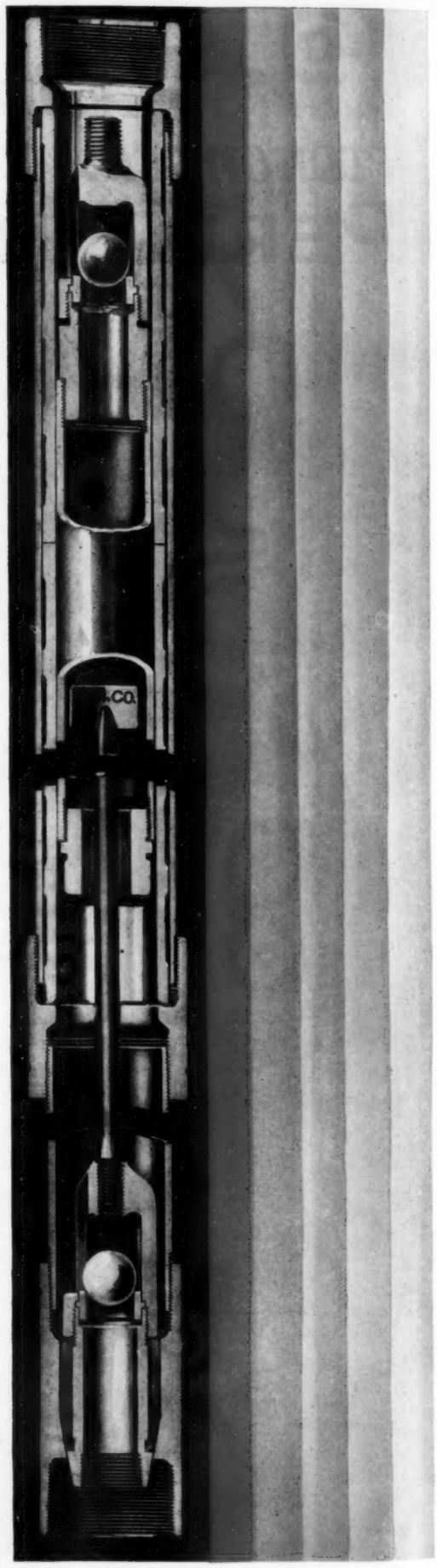
Branch Offices and Warehouses:

Bakersfield, Calif. Ventura, Calif.

Oil Well Supply Co., *Exclusive Sales Distributors,* outside of California, for H. C. Smith Coring Equipment and Demountable Drilling Bits.
Cable Address: "Smithco, Whittier"

Smith Type "C" Coring Outfit Complete. Includes: Outer Barrel (with top and bottom subs); Inner barrel assembly (3 ft. retainer sections, retainer collars, and retainer valve), bit body and bit cutterhead, core catcher, core pusher and bit breaker.

Proved reproved & proved *again*



Any machine shop with a few lathes can build oil well pumps. But the 37 years of experience concentrated in the manufacture of Axelson Pumps cannot be duplicated. Axelson *quality* is proved by the infinite care taken in selecting, treating and processing materials, and in the embodiment of fine workmanship. Axelson quality is preproved by the many tests and inspections made of the Product in plant and field—and proved again by the Operators' complete satisfaction and the performance of the Product.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

INTERCHANGEABLE PUMPS for INTERNATIONAL SERVICE

Axelson Machine Company
P. O. Box 337, Los Angeles, California
Tulsa, St. Louis, New York City (30 Church St.)
Mid-Continent and Eastern Distributors:
Frick-Reid Supply Corporation

Axelson

INTERCHANGEABLE LINER OIL WELL PUMPS

Say you saw it in The OIL WEEKLY

Built to Stand the Gaff of Oilfields

GENUINE Williams' "Vulcans" are the favorite oilfields Tongs—more are used than all other makes combined. They're deservedly popular with drillers and linemen everywhere, for they're built to stand the gaff.

"Vulcans" are made of tough wrought steel —from end to end. Extra large through-bolt and U. S. Standard nut fasten jaws to handle. Each chain is individually proof-tested and CERTIFIED.

Genuine "Vulcans" cost you no more than other tongs. Nine sizes for ⅛″ to 18″ pipe. Try No. 15½ on 16″ pipe. Literature?

J. H. WILLIAMS & CO.

"The Wrench People"

New York BUFFALO Chicago

GENUINE
WILLIAMS
SUPERIOR DROP-FORGED TOOLS
"VULCAN"
CHAIN PIPE TONGS

SKILLED SUPERVISION GUARANTEES THE QUALITY OF GULF PRODUCTS

COASTAL AND PARAFFINE CRUDES
GASOLINE — LUBRICATING OILS
NAPHTHA — GAS — OILS
WAX — PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

GULF REFINING COMPANY

General Sales Offices

PITTSBURGH, PA.

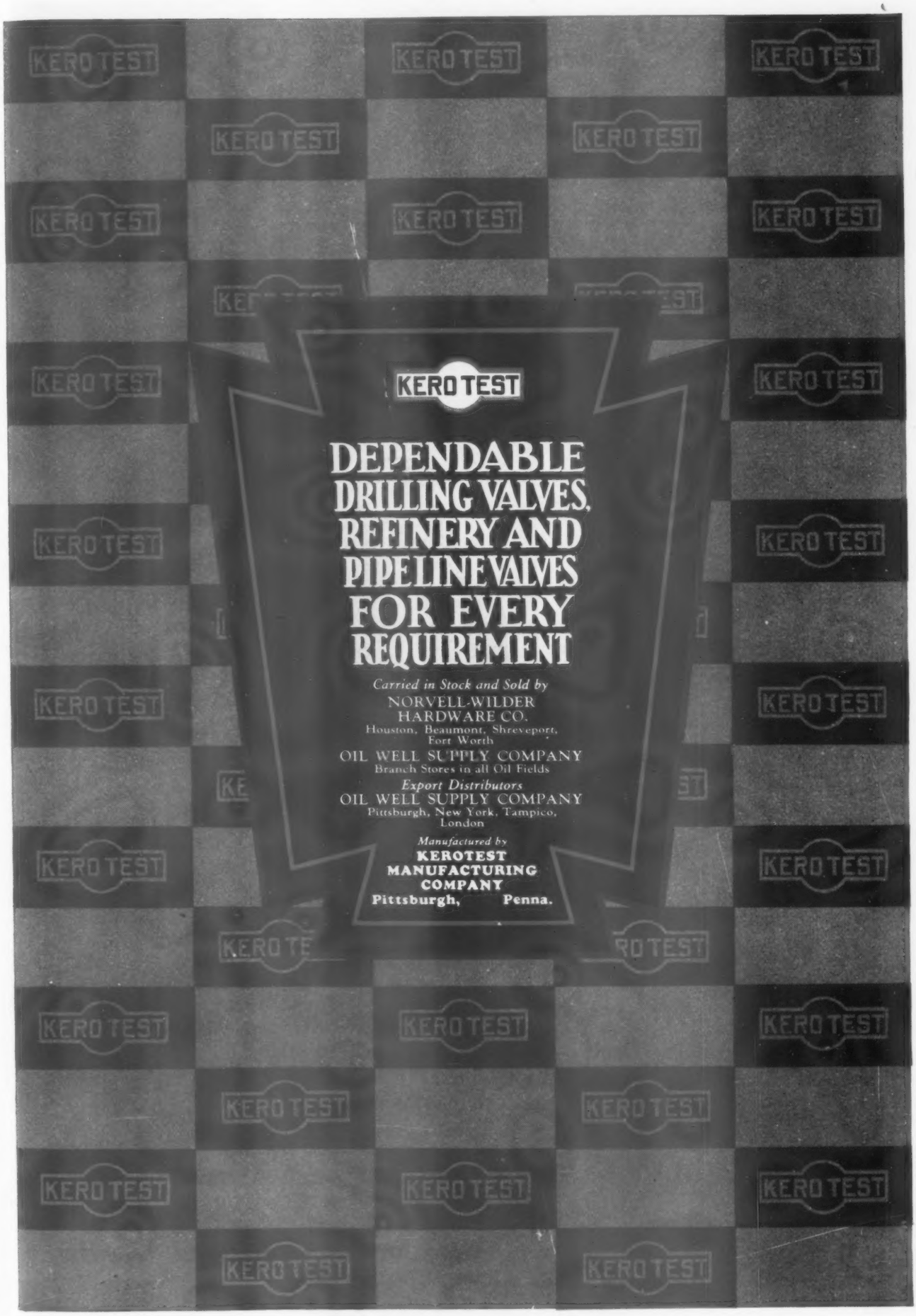
District Sales Offices

New York Boston Philadelphia Louisville Atlanta Houston New Orleans

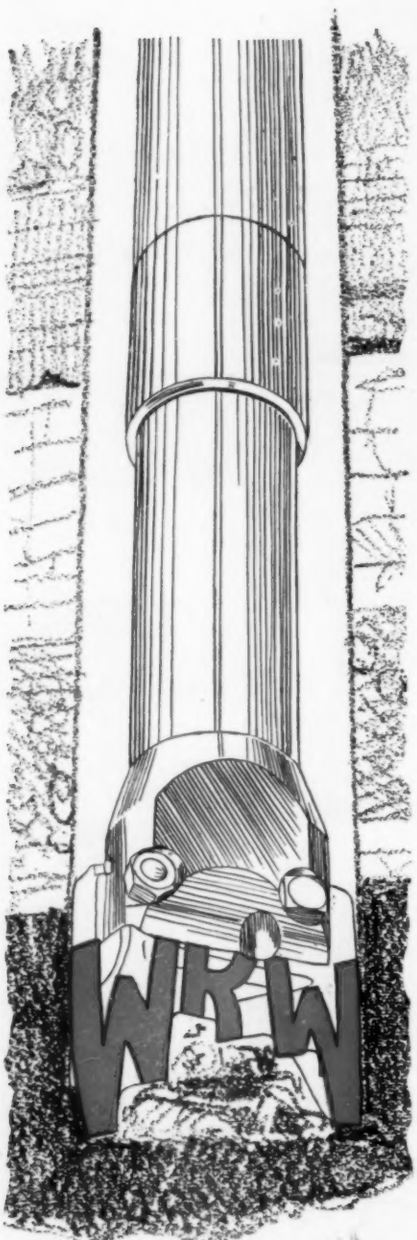
Ocean Terminals

Boston (Beverly), Mass.
Providence, R. I.
New York Harbor (Bayonne, N. J.)
Jacksonville, Fla.
Port Tampa, Fla.
Mobile (Magazine Point, Ala.)
Philadelphia (Girard Point, Pa.)
Charleston, S. C.
Savannah, Ga.
New Orleans (Gretna, La.)
Port Arthur, Texas
Galveston, Texas

Say you saw it in The OIL WEEKLY


KERO TEST
DEPENDABLE
DRILLING VALVES,
REFINERY AND
PIPE LINE VALVES
FOR EVERY
REQUIREMENT
Carried in Stock and Sold by
NORVELL-WILDER
HARDWARE CO.
Houston, Beaumont, Shreveport,
Fort Worth
OIL WELL SUPPLY COMPANY
Branch Stores in all Oil Fields
Export Distributors
OIL WELL SUPPLY COMPANY
Pittsburgh, New York, Tampico,
London
Manufactured by
KEROTEST
MANUFACTURING
COMPANY
Pittsburgh, Penna.

PUT WKW IN YOUR HOLE, AND GET *More hole per bit*



TYPE B-2
Patents Pending
PIN TYPE
Patents Pending

The W.K.W. Bit digs more hole because it offers more actual cutting edges and each tooth progressively rips away its share of the formation. It is unnecessary to make frequent changes from one type of bit to another when drilling through alternating layers of hard and soft digging. The W.K.W. bores right through the formation, whether the latter is hard or soft. It drills straighter hole at fast speed and saves wear and tear upon the drilling outfit and the crew.

Catalog upon request.

WIEMAN-KAMMERER-WRIGHT CO., INC. HOLLYDALE (LOS ANGELES COUNTY) CALIF. U.S.A. WKW BIT RIPS THRU THE EARTH

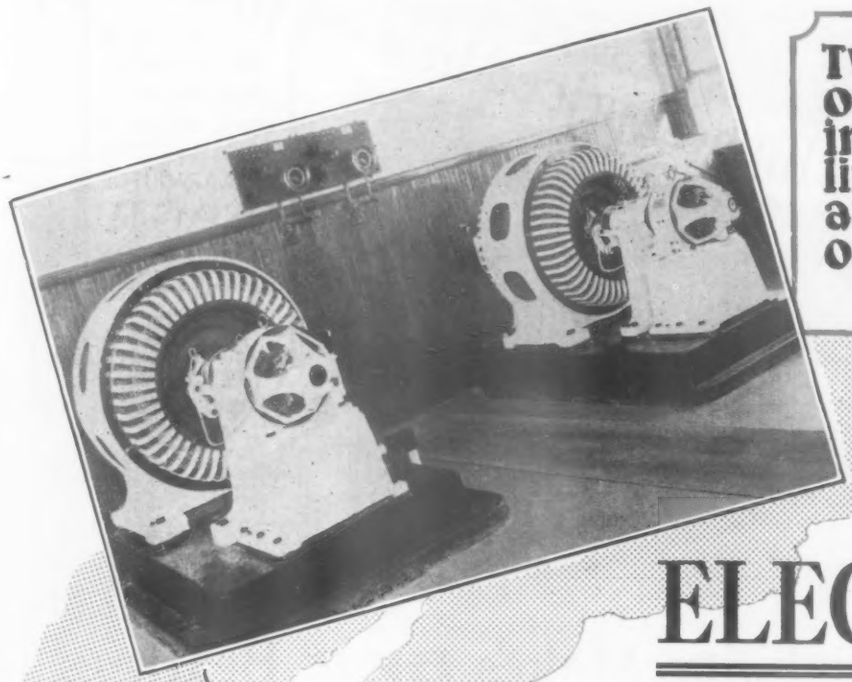
Wieman-Kammerer-Wright Co., Inc.
Hollydale, (Los Angeles County) California

Mid-Continent Distributors:
The Continental Supply Co.

Export Office:
The Continental Supply Co.,
150 Broadway, New York

Say you saw it in The OIL WEEKLY

SERVING West Texas



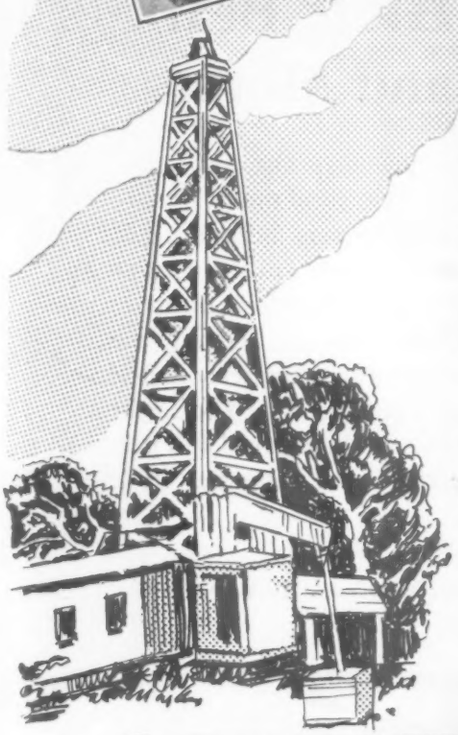
Two electric motors operate the pumps in the Illinois pipe line Company's station at Fort Lancaster:- one of ten stations to be electrified

ELECTRICITY

Quickly Proves its ECONOMY and CONVENIENCE

WHEN PRODUCTION MANAGERS have used Electric Power . . . and know for themselves how perfectly adaptable it is to pipe line pumping (as well as every other oil field task) . . . . how much CHEAPER it is than other types of power (even considering waste gas that can oft-times be had for the piping) . . . . they have "electrified" wherever it was possible.

The West Texas Utilities Company, with its available capacity of 70,000 horsepower . . . . with its 2,000 miles of "high lines" threading 42 West Texas counties . . . . with its potential ability to serve half-a-hundred MORE communities . . . . is solving the power problem for many of the progressive Production Companies in this territory.



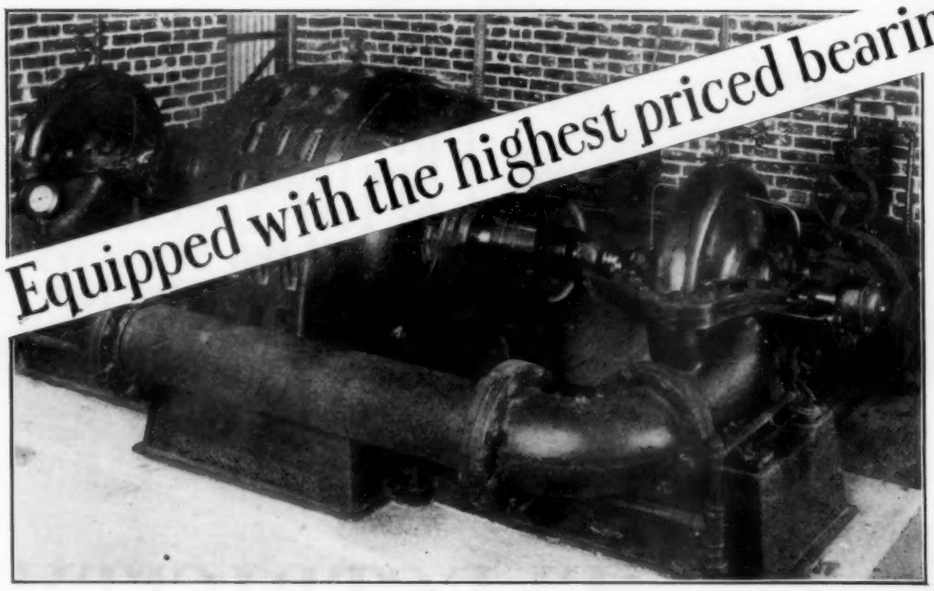
Before YOU Buy New Power Equipment

Let Our Engineers Show You How Quickly Electric Equipment will pay for itself in SAVINGS!

WEST TEXAS UTILITIES COMPANY
In the Land of Opportunity

ANOTHER ONE OF THE 83 ELECTRICAL MACHINERY MANUFACTURERS THAT USES SKF BEARINGS

Fairbanks, Morse & Co.



YOU MAY BUY A BEARING AS A BARGAIN BUT TRY AND GET A BARGAIN OUT OF USING IT

for

Nothing is apt to cost so much as a bearing that cost so little.

SKF Puts the Right Bearing in the Right Place

Absolute Reliability Makes SKF Bearings Worth More on Pumps and Motors

WHEN you get right down to brass tacks there's only one real test of pumps, motors and their component parts . . . uninterrupted service without "coddling" or constant attention. And that's the kind of service you get with SKF Ball Bearings . . . 24 hours a day . . . as long as the motors and pumps last.

Long-life SKF Ball Bearings bring two definite benefits on the assembly shown . . . they keep the impellers in permanent position and maintain initial air gaps. And this is because SKF Bearings never require any adjustments . . . at any time. Therefore pump and motor troubles due to bearing wear are eliminated. For these reasons Fairbanks, Morse knows that "the highest priced bearing in the world" will prove the cheapest for the customer in the long run.

SKF INDUSTRIES, INC., 40 East 34th Street, New York, N.Y. 2261

SKF

Ball and Roller Bearings

Say you saw it in The OIL WEEKLY

What Happens ?

When you use an inferior Screen

The centuries-old custom, among a very few persons, comes back to us.

A company or an individual decides to buy a certain type of product because it is cheap.

From then on his troubles begin. The inferior product does not hold up. Cost mounts sky high while costly men are paid to get the cheap product back in operation—production stops!

The men who know choose Layne screens above any other, and they are choosing the new milled Groove Screen because it speeds up production. They have relied upon Layne for more than a quarter century and are reaping the rewards justly due them.

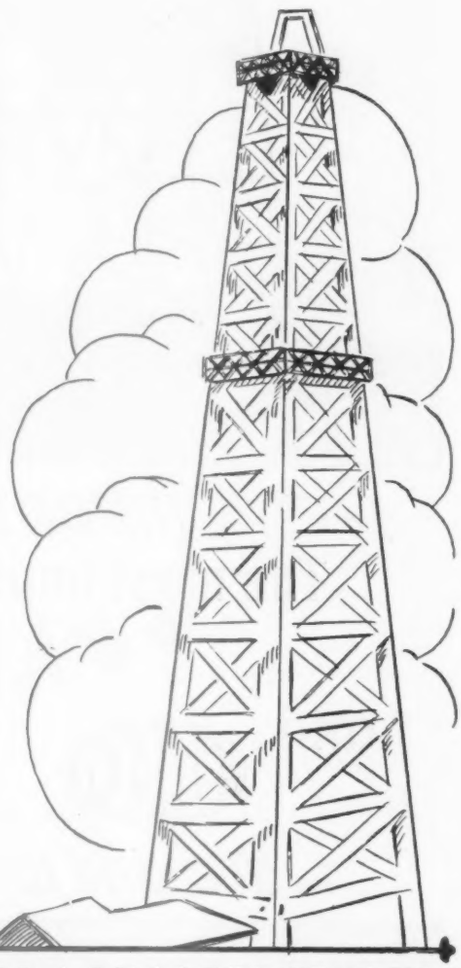
The new Milled Groove Screen is a new and exclusive Layne feature. Install it now instead of later!

Write, wire or phone for quick service or any further information.

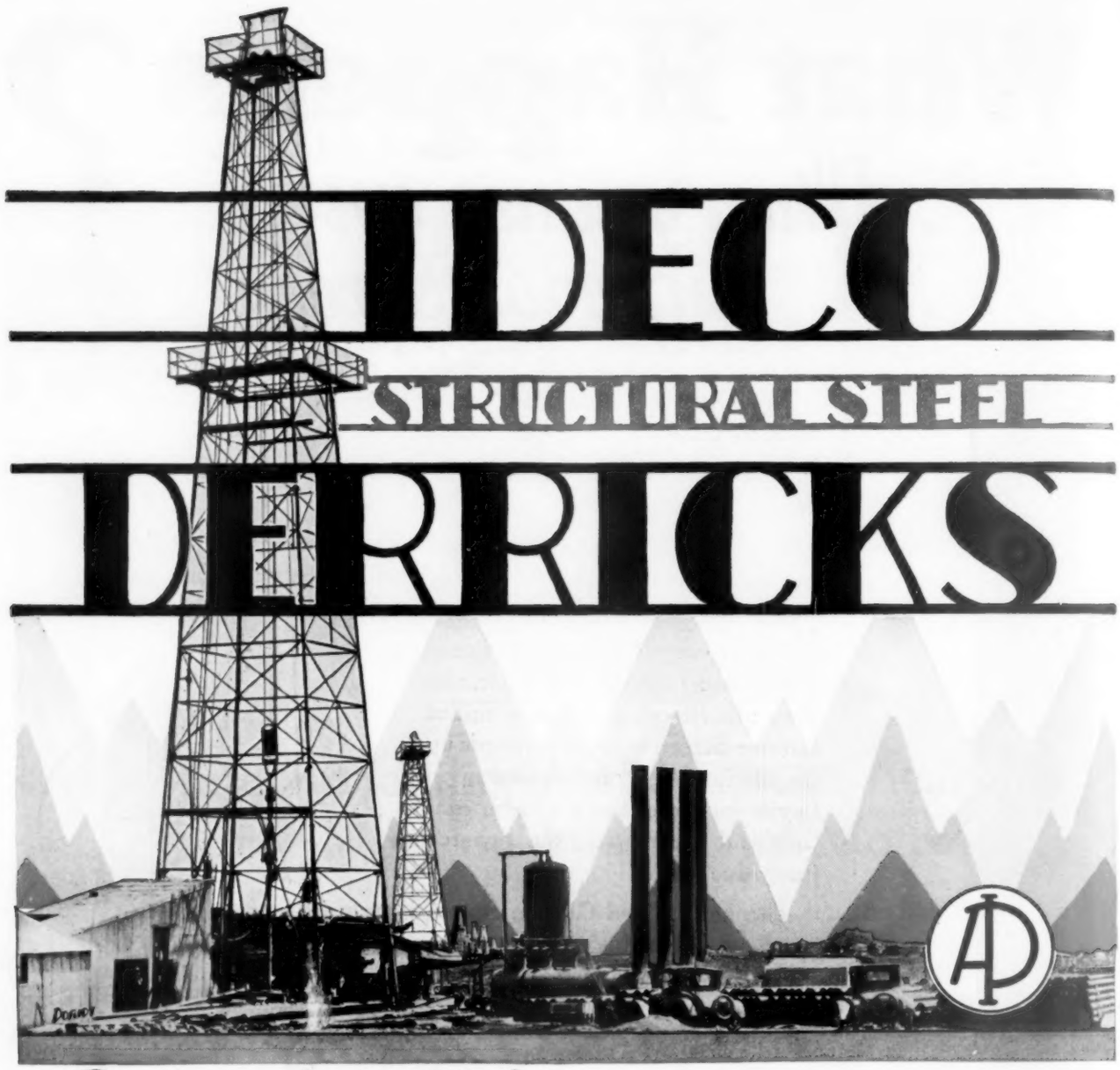
The Layne & Bowler Co.

HOUSTON THE LAYNE TEXAS

INCREASES PRODUCTION



LEADERSHIP IN SCREEN MANUFACTURE FOR A QUARTER CENTURY



Remember this!

The most important prolonger of Derrick life is GALVANIZING

and IDECO *derricks..*

..are, and always have been galvanized

THE INTERNATIONAL DERRICK & EQUIPMENT CO., Columbus, Ohio—Los Angeles, Cal.

Branches and Stocks—New York, N. Y.; Detroit, Michigan; Dallas, Fort Worth, San Antonio, Houston, Mexia, Wichita Falls, Pyote, Odessa, Amarillo, Luling, Borger, Corsicana, Pampa, Panhandle, Big Spring, Trent, Orange, Hebbronville, Texas; Shreveport, Oil City, Lake Charles, Louisiana; El Dorado, Smackover, Arkansas; Wichita, Eldorado, Valley Center, Kansas; Tulsa, Oklahoma City, Tonkawa, Drumright, Shidler, Okemah, Seminole, Allen, Sasakwa, Maud, Wewoka, Oklahoma; Los Angeles, Torrance, Bakersfield, Taft, California; Maracaibo, Venezuela.

Export Representation—74 Trinity Place, New York City; Columbus, Ohio; Houston, Texas; Los Angeles, Calif. 608

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APR -9 1929

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APRIL 5, 1929

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Volume 53, No. 3 *April 5, 1929*

The OIL WEEKLY

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Feasibility of Nation-wide Control Exemplified by Winkler Plan

Cooperative effort of producers in Hendrick field shows remarkable results which deserve study of entire industry

By H. J. STRUTH
Staff Economist

THIS is the first of series of articles dealing with the economic aspects of the West Texas oil area. Mr. Struth has just concluded an extensive tour of West Texas and Eastern New Mexico, having visited every important oil pool in that vast territory. His study of immediate and prospective conditions presents much information that has an important bearing upon the ability of the industry to cope with the problem of overproduction.

WHEN a prolific oil pool such as Hendrick in Winkler County, West Texas, can be consistently controlled to limit its output to six per cent. of potential, there is definite assurance that the industry can and will, eventually, solve the problem of overproduction. The results being obtained in this field, even in the face of acute water conditions, make it decidedly evident that it is possible to successfully limit the production of practically any oil pool in the country, regardless of flush stages or subsurface conditions. Visiting this field at a time when the industry is giving serious thought and action to the problem of overproduction, the writer was greatly impressed by the remarkable spirit of cooperation that exists among these operators. A visit to the office of R. Alsobrook, umpire of the Winkler County Advisory Committee, at Wink, proved beyond any doubt that here is a conspicuous example of cooperative development and operation that is a credit to the entire industry.

Cooperation of Operators

Mr. Alsobrook is most enthusiastic over the results which are being obtained under the proration plan, but gives all due credit to the splendid cooperation of practically every operator in that field. He said that it is often necessary to take drastic steps to prevent exceeding allowable production among individual companies over a definite period, but practically every operator stands ready and willing to abide by the schedules posted by the proration office. Each day a balance sheet is compiled showing actual production against allowable production of every unit in the Winkler County area. All excesses are charged against the producers' allowances and where the excess shows signs of consistently mounting, the umpire issues an order to pinch in sufficient production to equalize the cumulative excess. Thus, during a 15-day period, or over a period of months, the total variation from prescribed limits is negligible. In this connection it is of particular interest to find that over a period of about 10 months, from May 5, 1928 to March 1, 1929, actual production compared with allowable production showed a net shortage of 325,706 barrels. During that period, the grand total allowable outlet was 49,150,000 barrels, as compared with actual production of 48,825,294 barrels. The statement from which this information was obtained is shown in Figure 1, which contains details of potentials, allowable and actual production by companies. This report is evidence of the cooperative spirit that exists among Winkler County operators.

There are 555 producing oil wells in this field, which is rated at a potential daily production of 2,378,019 barrels, or very nearly as much oil as is now being produced in the United States. Under the proration plan in effect from March 16 to 31, inclusive, these wells are scheduled to produce not more than 175,019 barrels a day, or about seven per cent. of the potential estimated for the field. At a recent meeting of West Texas operators held in Fort Worth it was decided to reduce Winkler County production another 25,000 barrels, which will cut actual output to 150,000 barrels daily, or only six per cent. of the rated potential. More than 300 of the wells in this field are now producing water in various quantities ranging from two to 95 per cent. While this field has been proven over an area of eight miles long by two miles wide, it is apparent from wells drilled nine miles north and five miles south of the field that it probably extends from Ward County, Texas northward into Lea County, New Mexico. Even with its acute water problems, the Winkler County field possesses enormous possibilities that cannot be ignored as an economic factor for some time to come. Without proration, this area alone could quickly disrupt the oil market structure; controlled, it represents an enormous reservoir from which it will be possible to supply future market requirements on a profitable basis.

Estimated Recovery

Estimates place the total recovery of Winkler County at 160 million barrels. To date, this field has produced about 80 million barrels, indicating that only half of the ultimate recovery remains. However, judging from deep tests recently made in New Mexico and the discovery of

General view of the Hendrick field, Winkler County, Texas

the Delaware sand in Loving County below 4000 feet, it is believed that a similar formation exists below the Hendrick pool. If this is the case, it is possible that tests may reveal a high grade of oil, possibly possessing lubricating qualities. Undoubtedly the near future will witness the drilling of several deep tests in this field that may penetrate the Delaware sand below 4000 feet, possibly 4500. Most of the wells now producing have a depth of from 2550 to 3100 feet. At the present rate of controlled production, the estimates would lead us to believe that this field will have reached its economic limit by January 1, 1931. However, it is possible that deep tests will greatly extend the life of this particular area by a much wider margin, to say nothing of the possibility of further extensions of present defined oil sands.

Proration to Aid Recovery

Proration has been in effect in this field since May 5, 1928. Prior to that date production had reached a peak of 326,327 barrels on May 4. Following an order from the Texas Railroad Commission, which received the support of the operators, the daily output was cut to 150,000 barrels. This rate was maintained until June 15, when the order was amended to allow 175,000 barrels daily. On October 1 production was again curtailed to 150,000 barrels. On January 1, 1929, production was restored to 175,000 barrels, which was subsequently revised at the Fort Worth meeting to the former figure. This was the result of a compromise following the proposal of the American Petroleum Institute to reduce Winkler County's output to 125,000 barrels a day. Under the present plan each productive section is divided into 40-acre units, allowable runs being determined on acreage and potential production factors. The allowable run per unit by the acreage factor is obtained by dividing one-half of the total allowable run of the field by the number of producing units. The potential production of the wells is computed from one hour open tests taken for each period of 15 days, and the potential production of a unit is the sum of the potential productions of the wells on that unit. All wells are tested at least once each month. If a well is not gauged and if water percentage and gas pressure remain constant, a five per cent. decline of potential is made every 15 days. A larger percentage of decline is given to wells in which there is a change in water percentage and gas pressure. It is the general opinion among operators there that proration will be instrumental in obtaining the greatest possible recovery from the pool.

This field, more than any other in the West Texas area, presents a scene of bustling activity. Until recently, Winkler County operators have experienced great difficulty in hauling equipment and supplies through the loose sand which covers the field and surrounding country. This sand will run anywhere from a few feet to 50 feet in depth and often makes it necessary to encase the rat hole with boards or sheet metal to keep the sand from continually pouring into the cavity. A great improvement recently made was the completion of a concrete road running through the heart of the field. This road, beginning at Wink, traverses the center of the field about 15 miles and has greatly facilitated the transportation of equipment and supplies. The new roadway is the pride of Winkler County operators.

Concrete road through the Hendrick field

Ten pipe lines ranging in size from six- to ten-inch, having a total daily capacity of 247,000 barrels, are now in operation in the Winkler County area. The companies owning these lines are American Pipe Line Company, six-inch, 15,000 barrels daily capacity, terminating at Pyote; Atlantic Pipe Line Company, 10-inch, 50,000 barrels daily capacity, terminating at Midland; Humble Pipe Line Company, two eight-inch, 40,000 barrels daily capacity, carrying crude to trunk line; Independent Pipe Line Company, eight-inch, 30,000 barrels daily capacity, terminating at Pyote; Pasotex Pipe Line Company, eight-inch, 18,000 barrels daily capacity, carrying crude to trunk line; Shell Pipe Line Company, two six-inch, 25,000 barrels capacity, terminating at McCamey, Monahans and Company trunk line; Southern Pipe Line Company, six and eight-inch, 35,000 barrels daily capacity, terminating at Wickett; Skelly Pipe Line Company, six-inch, 12,000 barrels daily capacity, terminating at Pecos; Texon Pipe Line Company, six-inch, 10,000 barrels daily capacity, terminating at Pyote; and Texas

Pipe Line Company, six-inch, 12,000 barrels daily capacity, terminating at Monahans.

A quantity of Winkler County crude is being shipped to various refining points by tank car, loading racks being located at Pyote, McCamey, Monahans and Wickett. Refineries in the vicinity now operating on Winkler County crude are The Amarillo Oil Refining Company, refinery at Pyote; Blue Bonnett Oil Refining Company, refinery at Wickett; Humble Oil & Refining Company, refinery at McCamey; Midland Refining Company, refinery at Midland; Tonkawa Petroleum Corporation, refinery at Pyote; Pecos Valley Refining Company, refinery at Pyote and the Pasotex Petroleum Company, refinery at El Paso. Field storage facilities in this field are now in excess of 12 million barrels.

Practically all wells in this field are drilled with rotary equipment to the big lime and then completed with standard tools. Gas is encountered, in some instances, which runs as high as 75 million cubic feet with rock pressures ranging from 1000 to 1500 pounds. This gas, however, is of little commercial value because of its very high sulphur content. It has been estimated that the Hendrick field will produce about 10,000 barrels of oil per acre. The largest oil producers in the field are Atlantic Oil Producing Company, Southern Crude Oil Purchasing Company, Gulf Production Company, Shell Petroleum Company and The Texas Company, (Combined) Pure Oil Company, and Humble Oil & Refining Company. In all, 32 companies comprise the bulk of the ownership of lease and fee land in this territory, all of which are welded into one large cooperative organization, each unit of which functions according to the dictates of Umpire Alsobrook. This particular area can apparently be said to represent the nearest approach to the unit plan of operation and development in the country.

Those who are skeptical over the possibility of controlling the production of oil throughout the country, need only to visit the Winkler County field to obtain a new perspective and an insight into a new era that is gradually dawning upon the industry. While, undoubtedly, selfishness has been mostly responsible for the inability of the industry as a whole to function along sound, cooperative lines, it is apparent that saneness is beginning to pervade the ranks of those who hold the fate of the industry in hand. The regional meetings of the American Petroleum Institute and group meetings of operators in various fields are rapidly converting everyone concerned to the idea of proration. As matters stand now, it is logical to believe that the industry will be successful in limiting the output of crude during the present year. The real test, however, will come when the desired results are obtained and optimism begins to become rampant. However, if all flush areas pattern their proration plans after those now in effect in Winkler County it is a foregone conclusion that the problem of overproduction will be reduced to a system that will insure a return to normalcy. As Mr. Alsobrook said, "You can't bring about successful proration of any field unless there is full cooperation of all concerned." The sooner the industry realizes this axiom, the sooner will order and profit replace chaos and loss.

STATEMENT SHOWING (BY COMPANIES) THE TOTAL OIL PRODUCED IN HENDRICK POOL, WINKLER COUNTY, TEXAS, UNDER PRORATION PLAN

(May 5, 1928 to March 1, 1929), as compared against the total "Outlet"; also showing the accrued gross shortage and overage:

COMPANY—	Only 25% of Total (tested) Potentials (Probably true)	Total Allowable Production Under Plan	Total Actual Prod.	Accrued Gross Shortage	Accrued Gross Overage
Amerada Petroleum Corporation	207,399	165,333	161,149	4,184	....
American-Maracaibo Company	11,532	8,206	9,516	....	1,310*
Atlantic Oil Production Company	21,511,313	6,279,993	6,029,299	250,694	....
Bankers Producing Corporation	137,379	23,041	66,438	....	43,397
California Company	1,086,818	509,366	504,034	5,332	....
Cranfill & Reynolds	4,714,604	1,423,607	1,539,253	....	115,646*
Culbertson Brothers	9,323	5,606	6,425	....	819*
Eastland Oil Company	69,189	102,060	94,908	7,152	....
Empire Gas & Fuel Company	60,734	55,165	62,511	....	7,346*
Gulf Producing Company	17,419,954	4,148,570	4,188,121	....	39,551*
Humble Oil & Refining Company	7,788,954	3,514,929	3,377,888	137,041	....
Independent Oil & Gas Company	3,294,780	1,778,690	1,338,233	440,457	....
Magnolia Petroleum Company	196,910	383,660	339,568	44,092	....
Marland Production Company	2,476,573	837,603	810,398	27,205	....
May Oil Corporation	....	611	1,108	....	497*
Mining & Engineering Corporation	64,969	21,271	30,493	....	9,222*
Murchison & Cranfill	1,212,898	568,192	1,061,369	....	493,177
Murchison & Lee	444,557	92,948	185,610	....	92,662
Pickerell & Cranfill	....	....	6,376	....	6,376
Prairie Oil & Gas Company	4,987,008	998,613	1,021,617	....	23,004*
Pure Oil Company	15,611,992	4,245,881	4,335,039	....	89,158
Republic Producing Company	5,147,479	1,700,353	1,773,578	....	73,225
Richardson & Kelsey	39,152	66,083	87,478	....	21,395
Shell Petroleum Corporation	16,120,834	4,818,084	4,782,987	35,097	....
Shell Petroleum and Texas Company	15,662,799	4,250,964	4,232,852	18,112	....
Simms Oil Company	....	....	440	....	440
Skelly Oil Company	13,968,637	2,362,155	2,400,396	....	38,241*
Southern Crude Oil Purchasing Company	20,464,483	9,568,971	9,331,433	237,538	....
Texon Oil & Land Company	1,644,976	932,503	950,105	....	17,602
Warner-Quinlan Company	13,650	6,786	12,175	....	5,389*
L. H. Wentz Oil Company	21,664	20,287	22,825	....	2,538
Winkler Oil Production Corporation	128,677	46,288	61,672	....	15,384*
Undeveloped	....	214,181	....	214,181	....
GRAND TOTOL	154,519,237	49,150,000	48,825,294	1,421,085	1,096,379

Grand Total Outlet to Date	49,150,000	Grand Gross Shortage	1,421,085
Grand Total Production to Date	48,825,294	Grand Gross Overage	1,096,379
Net Plan Shortage to Date	324,706	Net Plan Shortage to Date	324,706

*NOTE—Entitled to some credit on acreage allowance on wells brought in during mid-period.

FIGURE 1

Situation Forces Curtailment Pact in Venezuela

Major operators reach agreement to limit drilling and close in substantial quantities of production

By ROY E. LEIGH
Special Foreign Representative

MARACAIBO, Venezuela. — The compelling force of necessity seems to have brought the Shell, Lago, and Gulf interests together in mutual agreement for further restriction of production in Maracaibo district. The new agreement, if such there be, probably became effective shortly after March 1, as unwonted activity was observed on the part of roustabout gangs who were busy last week installing smaller chokes on a number of big wells in La Rosa-Ambrosio and Lagunillas fields. The greater number of these market-breaking gushers is pinched in to three-eighths-inch openings, with a few wells flowing through one-half-inch and five-eighths-inch chokes. In addition, a large number of inside wells not affected by offset competition are entirely closed in.

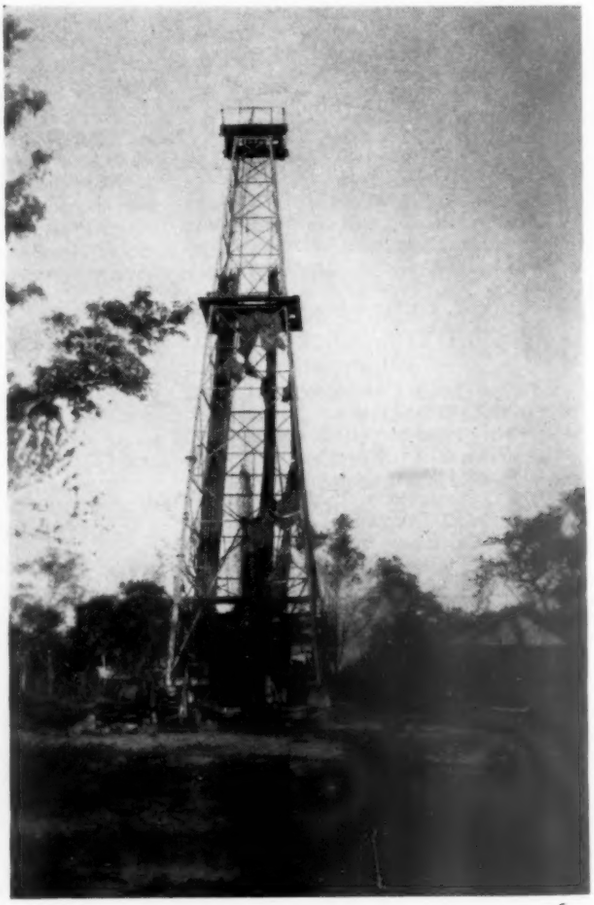
It is estimated that about 100,000 barrels of daily production are shut in at Lagunillas, and that an additional production of about 25,000 barrels per day is shut in in La Rosa-Ambrosio district. These figures refer to shut-in production,—wells actually closed in—and do not include "pinched in" production representing the difference between potential and actual production, of which nothing more than a very rough estimation is possible. If one were forced to calculate potential production of Bolivar lake shore fields, his totals might range between a half and three-quarters of a million barrels per day. Bolivar lake shore fields include La Rosa, Ambrosio, Punta Benitez, and Punta Benitez fields, situated in the District of Bolivar, along the northeastern shore of Lake Maracaibo. With a current daily average of around 200,000 barrels, Lagunillas field probably is producing at less than half its potential capacity. La Rosa-Ambrosio fields, being operated at the rate of approximately 112,000 barrels per day, were known to be good for more than three times that amount when shut in by mutual agreement during January, of 1927. Operations in these areas were restricted for nearly two years, or until October, 1928.

Such figures do not include Mene Grande and El Mene fields, which have consistently been "held under wraps," since neither Caribbean nor British Controlled companies are affected by offset competition. Likewise, La Paz and Concepcion fields of the V. O. C. (Shell) Company are closed in, and have remained so since June, 1927.

Status of Producers

Of more than 1050 potentially productive oil wells which had been completed in Maracaibo Basin as of March 1, about 600 were in operation on that date. About 450 of these potentially productive wells, including those shut in, sanded up, or dead for one reason or another and wells of the "pumper" type which failed to flow on completion, were dormant. With all operators straining every nerve to solve the twin problems of shipping and offset competition, mere pumpers and non-flowing wells receive but scant attention. The battle is being fought along the line of new production—the effort being to bring in new wells and flow them open for a day or two in order to establish underground channels of drainage away from offsetting wells. Inevitably, however, all new wells must be

Deepest Well in South America



Orinoco Oil Company's Netick 1, in Mara district, Venezuela, has been known as South America's deepest producer. A small flow of light oil was found at 5374 feet and it is being deepened to about 5800 feet

Entrenchments of the Industry in Venezuela

Fleet of tankers near loading terminal at Lake Maracaibo, Venezuela. These vessels, which appear to be unusually low in the water, are bound for the southern fields to pick up cargoes of crude oil. They are shallow draft vessels, especially designed and built for use in shoal waters

General view of the town of Cabimas, La Rosa-Ambrosio area, Venezuela. This area has a production of 114,880 barrels per day. Its major operators are Lago Petroleum Company, Colon Development Company, Ltd., and Venezuela Gulf Oil Company

Oil field camp of the Venezuela Gulf Oil Company in Mara district, Venezuela. This camp is situated near the discovery well of Mara district which found oil at 4100 feet. The Venezuela Gulf Oil Company is drilling a wildcat well, Amana 1, near this camp

pinched in after a short time, as the storage and shipping situation is acute.

The situation with respect to shipping was described in our issue of March 22, in which it was revealed that tanker movements have been speeded up; that substantial additions to the lake fleet are expected during 1929; and that 73 shallow-draft tankers lifting oil from Lake Maracaibo have an average capacity of around 386,750 barrels per day at 100 per cent. efficiency.

Some major companies probably have but little more than a 24-hour margin of safety with respect to available storage. Maracaibo Basin as a whole, including the non-competitive fields south and west of the lake, probably has no more than seven days available storage.

Stocks of Crude

Oil held in local storage probably exceeded 13 million barrels March 1. This represents an increase of from 4½ to five million barrels since January 1. On February 1, there were more than 11¼ million barrels of oil stored in Western Venezuela, exclusive of additional large stocks held by the Shell and Lago companies at Curacao and Aruba, Dutch islands lying off the coast of Venezuela.

Lago Petroleum Company has completed about 30 of a program of 51 80,000-barrel tanks under construction at Punta Tamare tank farm, in Bolivar district, which serves La Rosa, Ambrosio, Punta Benitez, and Lagunillas fields. As a feature of this construction program, Lago Petroleum Company is building a 10-inch pipe line and a narrow gauge railway paralleling the lake shore and connecting all of its fields in Bolivar district. These new shipping and storage facilities will, in a manner of speaking, greatly increase the mobility of its operations in these several fields, enabling it to deliver and/or shift oil and materials at any point at will.

Tankage Completed, Building, and Authorized

As of February 1, 1929.

Maracaibo Basin and Paraguana Peninsular.

British Controlled Oilfields, Ltd.	295,000
Caribbean Petroleum Co., Ltd...	1,480,000
Colon Development Co., Ltd....	323,500
Creole Petroleum Corp.	273,750
Lago Petroleum Co.	8,420,000
Gulf Refining Co.	5,902,000
Venezuela Oil Concessions, Ltd.	1,763,820
Total, Western Venezuela....	18,458,070

Not all of the above storage is presently available, since it includes tanks now in course of construction, etc.

Eastern Venezuela

New York & Bermudez Co.	110,000
Total, all Venezuela	18,568,070

Six New Fields Coming In

Rio Tarra field, situated in the interior near the Colombian border and about 100 kilometers southwest of Lake Maracaibo, is being held in check pending completion of an 8-inch pipe line to the lake shore, construction of which has just begun after having been deferred awaiting completion of a narrow gauge railroad for hauling in material. Here the Colon Development Company, a Shell subsidiary, has 23 wells shut in which are capable of producing around 15,000 barrels of 32-gravity oil per day. These wells range in depth from 875 to 3800 feet, which indicates the presence of several producing zones capable of important development. The Colon Development Company is operating four rigs and continuing development in anticipation of completion of the pipe line, which will be about 100 kilometers in length and will extend from Rio Tarra via Santa Rosa and Encontrados to Boca Escolante, where a lake-loading terminal will be constructed at the mouth of Rio Escolante.

Uramaco field, situated in the State of Falcon, near the shore of the Venezuela gulf and about 110 miles northeast of Maracaibo, is believed to have important possibilities. Richmond Petroleum Company (Standard Oil Company of California) is operating the property in partnership with the Beacon-Sun Oil Company, a company formed to merge and consolidate certain Venezuelan holdings of the Sun Company and the Beacon Oil Company (now owned by the Standard Oil Company of New Jersey). Its first well, a large gasser which made considerable oil and salt water, was lost by fire. The second well, completed on December 24, with an estimated potential production of 2100 barrels of oil per day, is shut in to await the further development of the property. This production is found at a depth of approximately 3500 feet. Two other wells are being drilled in the immediate vicinity of the discovery well (El Mamon No. 1-A), and a third operation is in progress a short distance south of the proven area for the purpose of testing structural conditions.

In Dabajuro field, situated about midway between El Mene and Uramaco fields in Buchivacoa district, American-British Oil Company, controlled by the Creole Petroleum Corporation (Standard Oil Company of New Jersey), is operating two rigs in exploratory work. Three or four small gas and oil wells have been completed at various depths ranging from 430 feet, 850-900 feet, to 2100 feet; but their production is being used only as fuel for the drilling boilers. Pipe line facilities have not been arranged, and no oil has been shipped.

North Venezuela Petroleum Company is operating three rigs in the new oil field at El Mene del Salto, Acosta district, which is in the extreme eastern part of the State of Falcon and about 50 miles up the Caribbean coast northwest from Puerto Cabello. Two other rigs are being set up at Aguide, on the coast about 20 kilometers north of El Mene del Salto.

This new field, situated at the mouth of Rio Tocuyo, is another district of unmeasured possibilities. Of nine wells drilled, seven have been productive of an average of 200 barrels per well per day at depths ranging from 1500 to 2000 feet. No oil has been exported, but the outlook is believed to be bright.

In Amana field, situated near Rio Limon in Mara district, about 45 miles northwest from Maracaibo, Gulf Refining Company's Venezuelan subsidiary has one producing well at 4100 feet which is making about 60 barrels of oil per day. This production is consumed as fuel in drilling a second well, Amboy No. 1, where progress has been arrested by a fishing job at 3890 feet.

Orinoco Oil Company is fishing at around 5700 feet in its Netrick No. 1, in the Mara district, northeast of La Paz field and northwest of Concepcion field. A small production of light oil was found in this well at 5374 feet, from which it became known as the deepest producing oil well in South America. However, the well is now being deepened with the intention of making a further test of some 900 feet of oil sands interspersed with layers of shale.

Current Average Production (Daily)

Maracaibo Basin

Venezuelan Consolidated Oilfields, Ltd.,	
Lagunillas	61,845
La Rosa-Ambrosio	58,320
La Paz .....Shut in	
Concepcion .....Shut in	
	120,165
Venezuela Gulf Oil Company	
Lagunillas	65,000
Ambrosio	26,260
La Rosa	6,900
Punta Benitez	360
	98,520
Lago Petroleum Company	
Lagunillas	73,375
Ambrosio	12,565
La Rosa	7,835
Punta Benitez	385
	94,160
Caribbean Petroleum Company	
Mene Grande	30,000
British Controlled Oilfields, Ltd.,	
El Mene	5,000
Colon Development Company, Ltd., (Shell)	
Rio Tarra	400
Richmond Petroleum Company (S. O. Calif.)	
Uramaco	200
Creole Petroleum Corporation (S. O.-N. J.)	
Totumo	100
Dabajuro	25
	125
Central Area Exploration Co.	
Hombre Pintado	75
Total, Maracaibo Basin..	348,645

Eastern Venezuela

New York & Bermudez Co. (General Asphalt)	
Guanoco	1,200
Northern Venezuela Pet. Co. ...	300
Creole Petroleum Corp.	
Maturin	200
Sub-total	1,700
Total, Venezuela	350,345

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Crooked Holes—Causes and Effects

By FREDERIC H. LAHEE
Chief Geologist, Sun Oil Company, Dallas, Texas

(Continued from last week)

EFFECTS of the crookedness of holes are of several kinds. Some are mechanical; some concern production; some have to do with engineering practice; some are purely geological; and so on. A majority of these effects, however, can be classified as either mechanical or geological. Ultimately all of these are directly or indirectly financial.

Mechanical Effects

We should be neglecting a very important phase of our discussion if we should omit this topic.

Mechanical troubles are exaggerated by rather abrupt changes in the course of the hole. Where deviation takes place in a broad curve, difficulties may not be experienced, or they may be so slight that they escape notice. But whether observed or not, in every hole which is off the vertical there must be more or less irregular wear.

As a result of bends in the hole, the drill stem may twist off. Difficulties may be experienced in running the drill stem, in pulling out the drill stem, in running casing in open hole, or in running one string of casing in another. Pipe may collapse or part. Sides of the hole may cave, due to rubbing. Where a steel cable is used, as in cable-tool drilling or in swabbing operations, the cable may wear through casing which has been set. After a well has been put on the pump, there may be trouble with broken rods and rod-cut tubing.

Other mechanical difficulties might be mentioned. All along the line, almost from the time the hole is spudded in until it is completed as a well, and from the time it begins to yield until it ceases to be a commercial producer, these mechanical difficulties in connection with crooked holes are numerous and sundry. Obviously their cost must run into large sums of money.[27]

[27]For further information on this subject, see: F. G. D. Muller, "Much Trouble Caused by Crooked Holes," Oil Weekly, April 19, 1924, p. 27; H. B. Goodrich, "A Compilation of All Published Matter." . . . (1926), published in Oil & Gas Journal, November 15, 1928, p. 38; R. Van A. Mills, "Crooked Holes," Oil & Gas Journal, August 23, 1928, p. 30; J. L. Dwyer, "Crooked Holes Cost Industry Vast Sum," Oil & Gas Journal, August 23, 1928, p. 29; E. J. McKee, "Some Causes and Effects of Crooked Holes," Oil Weekly, November 23, 1928, p. 60.

Under the term "geological" we are including all those effects of the crookedness of holes which may be related to geological deductions and recommendations concerning possibilities of production, or to interpretations of geological structure, or to other similar subsurface conditions.

In the light of what we now know about the deviation of bore-holes, the care with which well locations are measured off and surveyed on the ground becomes almost a joke. Arguments are not uncommon as to a choice between two points, as little as 50 feet apart, for the location of a hole to be drilled to a depth of 3000 feet or 4000 feet. Indeed, how often is it not true that a location is surveyed just one foot more than the required distance in order to insure the correct offset spacing!

Figure 17 is a diagram to illustrate a possible spacing of the bottoms of six holes which, on the surface are assumed to be 660 feet apart. The arrows show the supposed direction of the horizontal migration of these holes, and the amounts are indicated beside the arrows. None of these quantities is extreme. Now imagine that the petroleum engineer is going to use the production figures from these wells to study the decline of production, or to estimate the per-acre yield of a particular property, or to investigate problems of porosity and the rate of flow through the sand, or to plan a logical system of repressuring, or to undertake a dozen other similar problems, all of which are fundamentally premised on the measured spacing of the wells at the surface of the ground. Truly, for the satisfactory solution of these engineering problems we must either drill our holes vertical or we must know their real location underground.

FIGURE 17

There is little question that in many of the reported cases where offset wells exhibit remarkable effects of production rise or fall, as if the sand were very porous between the two or as if they were connected by open channels—that many of these cases are due to the close proximity of the wells at the pay sand depth.

What Temperature Study Corrects

One of the lines of scientific research, now under serious investigation, which promises to be of practical value as an index to subsurface uplifts, concerns temperature measurements in wells. Those engaged in this research are naturally anxious to secure records in deep wells. Unless they know the vertical depths of their points of measurement and the actual positions of these points on the structure, many of their readings, and particularly their deep readings, are going to be much in error.

Figures 18 to 22 illustrate several anomalies and misinterpretations

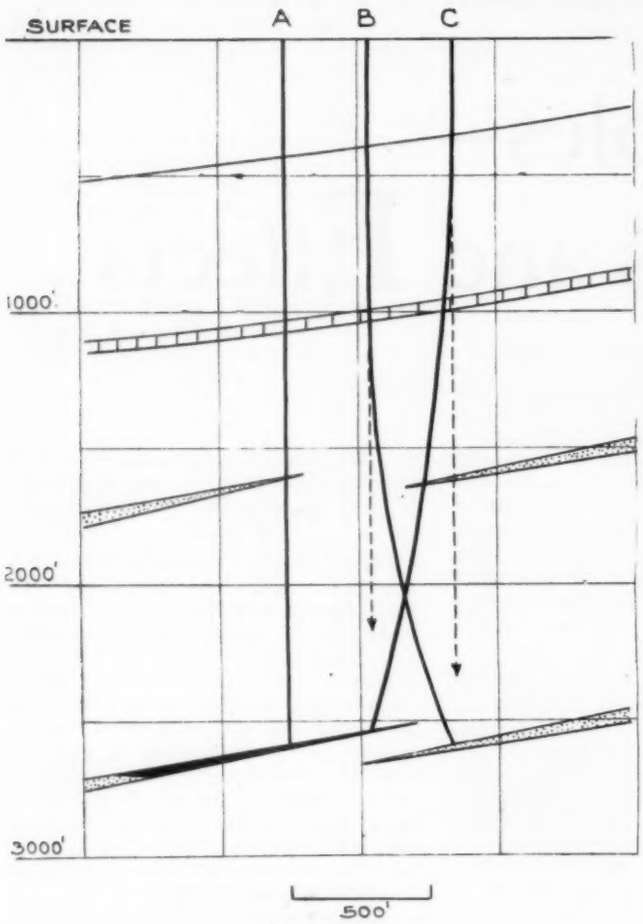


FIGURE 18

which may easily result from the deviation of holes from the vertical.

In Figure 18 holes "A," "B" and "C" were drilled 300 feet apart in a region underlain by strata with a monoclinal dip. Oil sands, when present, are lenticular, containing oil toward the up-dip edge and water toward the down-dip edge. "A" should have been a good well, "B," a good oil well with gas, and "C" a dry hole, in which the pay sand was absent. As drilled, "A" is a good well; "B" entirely missed the upper water sand and the oil sand, encountering a lower water sand; and "C" was a well producing oil and gas in the pay sand.

In Figure 19, "C," between two wells, "B" and "D," should have produced oil; and "G" should have been dry. As shown, however, "C" would have been a puzzle since it was dry and apparently missed the pay altogether. "C" was a surprise in that it was a much better well than "F." An actual example of this kind was described in the March 29 Oil Weekly, wells 19 and 20.

Location Methods Unreliable

Figure 20 illustrates one side of a salt dome in cross section. If the four wells had been vertical, "A" would have been a deep edge well; "B" and "C" would have been good producers; and "D" would have gone into salt several hundred feet above the pay. Due to the deviation of these holes, "C" was an edge well, "A" and "D" were big producers, and "B," between two oil wells, went into salt.

It is plain, in the light of these illustrations, that a wildcat well, located on structure, might easily drift off and miss an oil-bearing sand, especially where drilling is deep.

In a hole which has acquired even a moderate angle of inclination from the vertical, erroneous estimate of the thickness of the formations penetrated are possible, and consequently incorrect figures may be given for casing seats in subsequent wells. The oil sand may be partly or wholly cased off, or, on the other hand, a water sand may not be completely shut off.

Subsurface contour maps are based on the assumption that the key horizon was penetrated vertically below the mouth of the well. Elevation of the key horizon in each well, either above or below sea level, is obtained by referring this assumed vertical depth to the sea level elevation of the mouth of the well. If the hole is crooked, an error is introduced into the calculated elevation of the key horizon, and this error may be quite large. In Seminole field, the greatest recorded vertical discrepancy at a depth of 4000 or 4100 feet was 798 feet. The average for 90 wells is recorded in Snow's table, in the March 29 Oil Weekly.

Necessity of Surveying

No doubt in a majority of wells, taking into consideration all producing regions this vertical error is relatively small; but it may be large without any suggestion of crookedness of the hole in drilling. Consequently, holes should be surveyed for satisfactory contouring. The vertical error should not be greater than the contour interval. In maps covering small areas, or single pools, drawn on a large scale, considerable errors may creep in, unless, as is commonly the practice, the data from "freak" wells are omitted. But regional maps, constructed on data from wells which are several to many miles apart, suffer very little from the incorrect values obtained in crooked holes. The holes must be deep and far off the vertical to cause any serious misconstruction. And in any event, such maps are always properly used and read with an open mind.

In Figure 21, five holes are shown in vertical section. From measurements in these holes, from the surface down to the key horizon, RST, the structure represented by line VW was inferred. Actually, however, the structure was that indicated by the full line, RST. The misinterpretation was due principally to the abnormal depth at which holes "B" and "C" reached the key horizon. It is easy to appreciate how an oil pool 1500 to 2000 feet wide might have been missed between "B" and "C."

Figure 22 is another example of false interpretation. Here the excessive depth of hole "B," at the key horizon, RMW, led to the conclusion that a fault of some 400 feet displacement lay between "B" and "C," the strata on both sides of the fault having a dip toward W. Yet actually RMW is an unbroken anticline.

Orientation of Cores

A phase of this problem in which the geologist is vitally interested, not for the mere scientific information which it may give, but for the very practical value which attaches to it, is the correct orientation of cores. In diamond drilling for hidden structure, cores are obtained for study. In our modern rotary drilling, most companies require cores at frequent intervals. Even in cable-tool drilling devices are being perfected for securing cores. Generally, it is true, these cores are used for simple correlation from well

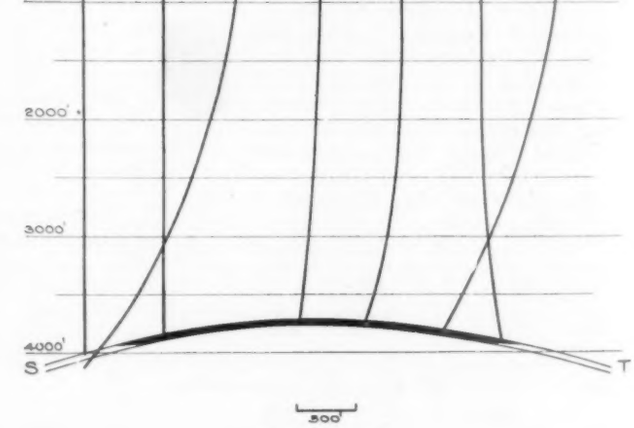


FIGURE 19

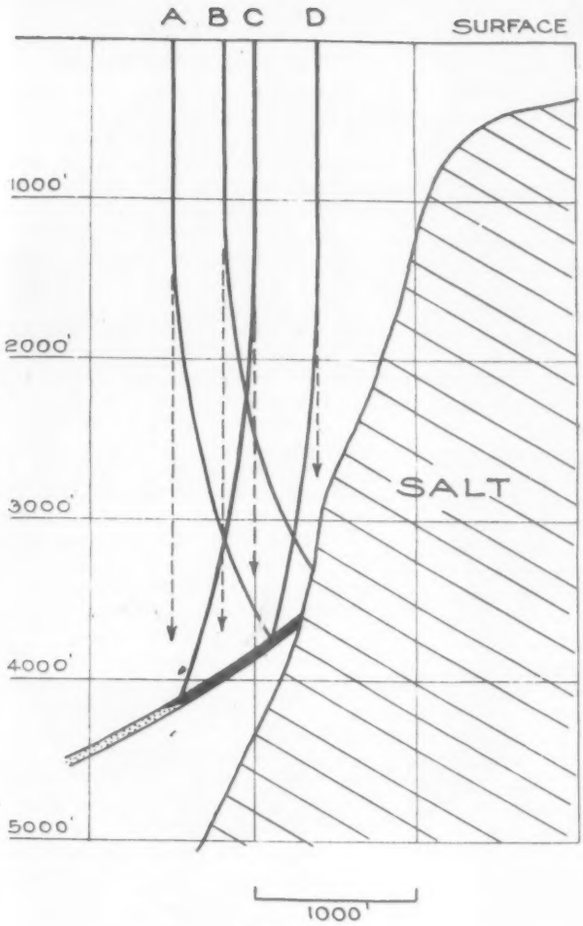


FIGURE 20

to well; but where they exhibit stratification or cleavage or faulting or other similar rock features, we should be able to orient the cores. If the hole was vertical, we ought to know which part of the core faced north. If the hole was inclined, we ought likewise to know its azimuth and which part faced upward, toward the "hanging" side of the hole, to use a mining term. Very valuable information could often be secured if we could determine the orientation of such cores.

As a suggestion of problems of this type, we have drawn Figures 23 and 24. In Figure 23, the hole was drilled in inclined strata. Cores taken at four points all revealed dips of about 30°. Without being able to determine the orientation of these cores, "A" would probably have been the interpretation; but the true relations, brought out by knowing the real position of the cores in the hole, are shown in Figure 23, "B."

Calculating Dips

Figure 24 illustrates a problem which actually occurred. A well was drilled on a flat dome. At a depth of about 3500 feet it abruptly passed into a series of beds with relatively steep dips which remained nearly constant to the bottom of the hole at about 4000 feet. Assuming that the hole is vertical, did this lower series of beds dip west (A) or east (B) or in some other direction? If an oriented core had been obtained, the operator would have known which way to go to drill into a higher part of the structure in this deeply buried formation.

The study of cores for their orientation and the determination of the direction of true dip is not easy. For instance, (1) in a vertical hole penetrating horizontal strata, the lamination is at right angles to the axis of the core. If (2) the beds are horizontal and the hole is inclined the angle between the axis of the core and the lamination is equal to the inclination of the hole (Figure 25). If (3) the beds dip, let us say 30° due south, and the hole is vertical, the lamination in the core makes an angle of 30° with the axis of the core. But, unless the angle of deviation of the hole is known in case (2) and unless the orientation of the core is known in case (3), we cannot interpret the dip in the core.

Now suppose that (4) the beds dip 30° due south, as in case (3), and the hole is inclined 30° off the vertical in a due north direction, the core will show lamination perpendicular to its axis, as in case (1). Or, (5) the hole may be inclined more than 30° from the vertical in a due north direction, or (6) less than 30° due north, or (7) at an angle of less than 30° from the vertical due south.

Formation Dip vs Crooked Hole

These are all comparatively simple cases, for the hole is inclined in the plane of the dip of the strata. They are illustrated in Figures 25-27. The real difficulty lies in the fact that extremely few crooked holes are inclined in the plane of the dip of the bedding, even in the short length of hole from which the core came. Thus, in Figure 28, the core, represented by the graduated glass tube, slopes toward the left in the plane of the picture. The surface of the black liquid marks the horizontal line. The bedding (white line) dips toward the background, almost at right angles to the plane of the picture. It is evident from this picture that if the relations of the bedding (white line) to the horizontal plane and to compass directions were not known, absolutely nothing could be determined from the relations of the bedding to the core alone. This is true even if the correct attitude of the hole were known.

I am stressing this topic because I am thoroughly convinced that oriented cores ought to be secured from drilling wells, but in order to secure them the hole must be surveyed as to both its angle and its direction of deviation from the vertical.

Figures 29 to 32 are photographs of cores. They are interesting, but their significance could not be fully determined because they were not oriented.

THE SURVEYING OF CROOKED HOLES

Quantities to be Measured, and Devices for Measuring

In the present paper there will not be space to enter into detail regarding the mechanism of the many kinds of instruments devised for surveying crooked holes, nor for describing the methods of calculating results. We intend only to outline the principles involved.

The quantities to be measured or surveyed are:

1. The angle of deviation of the hole from the vertical, determined at any given point or points along the course of the hole.
2. The direction, or azimuth, of this vertical angle of deviation, measured at any given point or points along the course of the hole.
3. The position of any such point or points in the hole, relative to fixed points on the ground.
4. The true attitude of bedding or other similar geological features, from correct orientation of cores.

For determining merely the angle of deviation of a hole, the following devices have been used or suggested:

1. "Acid bottle," i.e., a bottle partly filled with hydrofluoric acid and water commonly in the proportion of one of acid to three of water.
2. Two pendulums pivoted to swing in vertical planes at right angles to one another; or one pendulum swung on a universal bearing.
3. A level bubble.

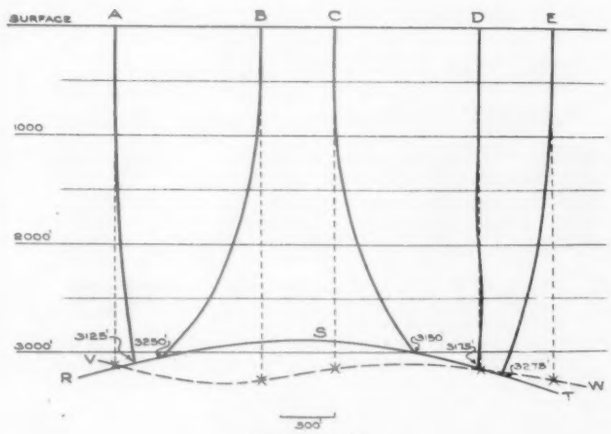


FIGURE 21

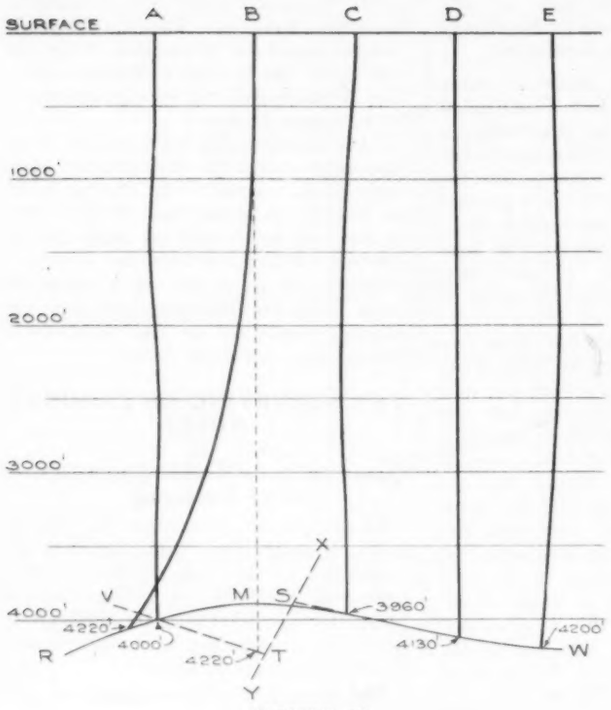


FIGURE 22

4. Mercury, making electrical contacts.

5. Principle of the Wheatstone bridge.

For measuring the direction of deviation of a hole, the following instruments have been used, generally in combination with one or another of the devices mentioned above.

1. Electric lights lowered into an open hole.

2. A drill stem carefully surveyed as to its azimuth at the mouth of the well.

3. A magnetic compass.

4. A gyroscopic compass.

5. Inertia of a rotating heavy body.

For recording one or more of the quantities measured by the instruments just cited, the following means have been utilized:

1. Photographic apparatus.

2. Bristles or clamps which are set at the proper time.

3. Pin pricks on a continuous tape, or on other record forms.

4. Gelatin or other similar substance which congeals about, and thereby sets in position, such a device as a compass needle.

5. Accurate surveying at the mouth of the well.

To operate some of these mechanisms, the following have been used:

1. Electric current, generated by a battery which is lowered into the hole.

2. Electric current carried from the ground surface by wires suspended in the hole.

3. Clockwork, timed to register automatically at the required depth, or depths.

4. Rotation of the drill stem.

For ascertaining the position of any point in the hole, some suggestions have been made or experiments have been conducted along the following lines of seismographic observation:

1. Setting off charges on surface, with seismograph in hole at required depth.

2. Setting off charges in hole, with several seismographs properly stationed around hole on surface.

3. Seismographic or geophonic registering of vibrations caused by drilling, especially cable tool drilling, the instruments being placed at suitable distances from the mouth of the hole.

DESCRIPTION OF INSTRUMENTS AND METHODS

The Acid Bottle Method

The simplest apparatus in use for determining the angle of deviation of a hole is the "acid bottle." A small quantity of dilute hydrofluoric acid is poured into a glass bottle which is then tightly corked with a rubber stopper. The bottle is lowered into the well in a suitable container, commonly a length of steel pipe, which can easily be made small enough to run in a six-inch drill stem. This container is securely capped and sealed against leakage from without. It is lowered in a few minutes at the end of a steel line, and is allowed to rest at the selected depth for 15 or 20 minutes, during which time the acid dissolves away a thing layer of glass, leaving a sharp line at the edge of the liquid. If the hole is inclined, this line is inclined, and its angle can be measured in the bottle after this has been withdrawn from the well and the acid poured out. The method is simple, but it is rather messy because rubber gloves are necessary and great care must be used lest the acid injure one's hands or clothing. Unless sufficient precautions are taken, the bottles may be broken either by jarring in running in or running out or by the high pressures at great depths.

Descriptions of the acid bottle method have been published by Peele, Hall & Row, Smith, and others.[28]

Briggs Electrical Method

Professor Henry Briggs, of Edinburgh,

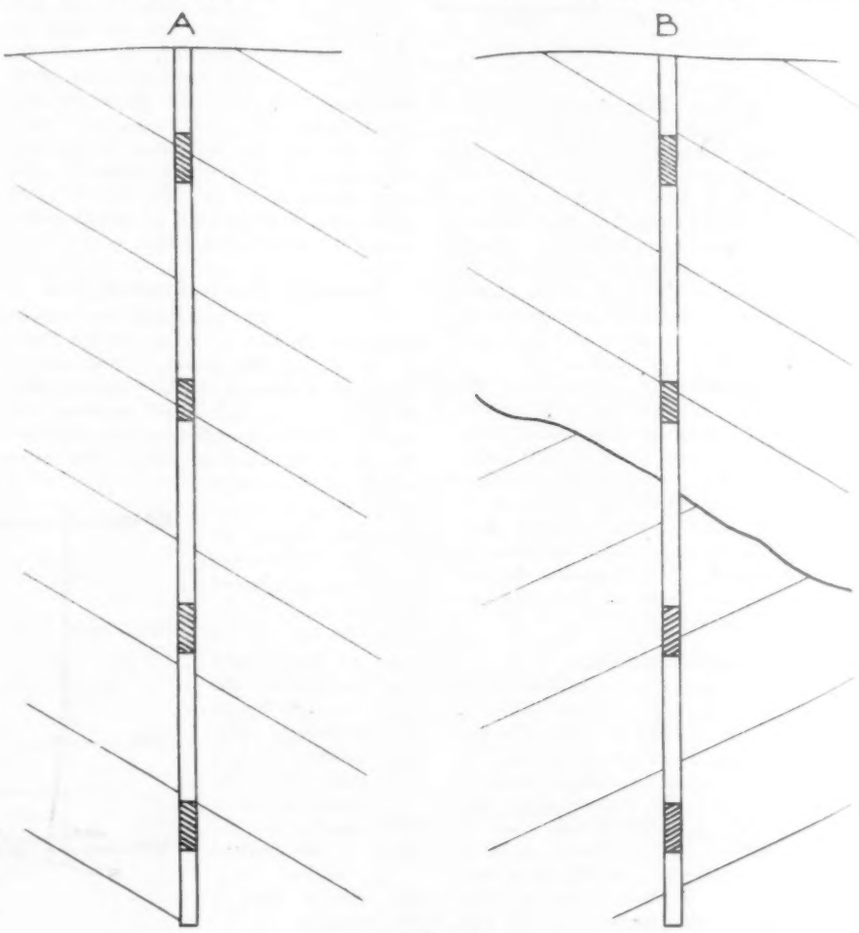
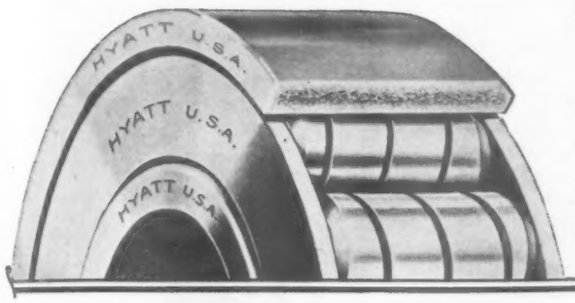


FIGURE 23

[28]Robert Peele, Handbook for Mining Engineers, pp. 369-370 (1918). O. Hall & V. P. Row, "Wedging Diamond-Drill Holes." Trans. Am. Inst. Mg. Engineers, Vol. LXIII, pp. 413-420 (1920). E. Smith, "Crookedness of Deep Holes Determined by Acid-Bottle Method," Nat. Petroleum News, July 21, 1926, p. 50-A.



POOR bearings bring more repair ills, perhaps, than any other single cause. Bearings that stick, drag and quickly wear, are a continuous source of trouble.

Forgetting the cost of replacements for the moment, figure the loss—in *time, production* and *profits*—while a machine or any other piece of equipment, sometimes tying up an entire section, is laid up for repairs.

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Equipment employing Hyatts is freed from bearing replacements. Because Hyatt bearings practically eliminate wear and keep the operating parts in perfect running order.

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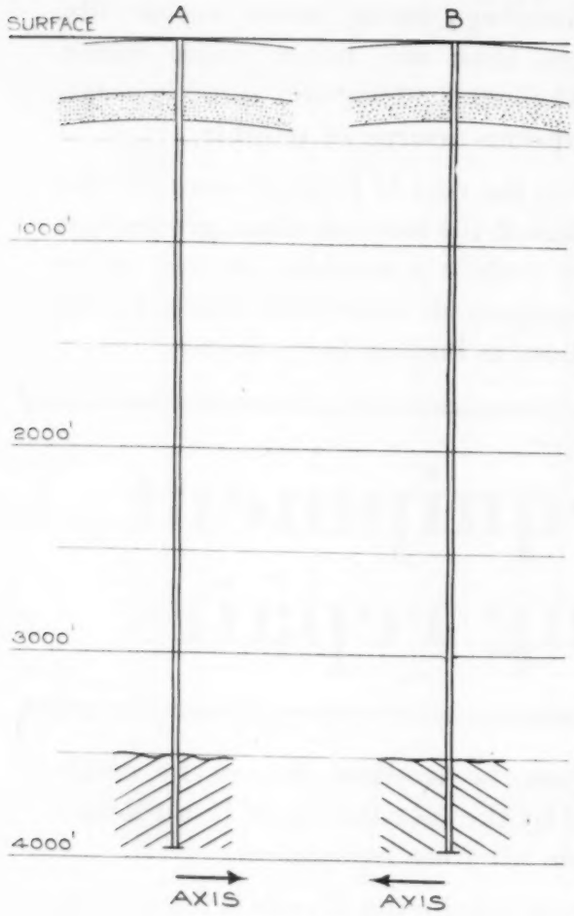

FIGURE 24

invented an electrical method of surveying bore holes. A small vessel containing a highly resistant liquid is lowered in the hole and a similar device is on the ground, the two being connected by insulated wires. At the end of a pendulum, a needle, included in the electric circuiting, is free to swing in the liquid in the lower instrument. In each vessel are four electrodes, marked N. E. S. and W. The orientation of the lower vessel is kept constant, according to the inventor, due to the fact that it is attached to the drill rods which are oriented at the surface. According to the principle of the Wheatstone bridge, variations in the resistance ratios between the needle and the four electrodes in the lower instrument, due to shifting position of the needle when the pendulum swings off center, as in an inclined hole, can be duplicated in the upper instrument by shifting a needle, connected to the circuit, in the liquid in this upper instrument until zero indications are obtained by the recording device. This device may be a galvanometer where direct current is used, or a telephone receiver where alternating current is used.

The advantage of this instrument lies in the fact that it will give continuous readings of angular deviation of the hole from the vertical. Its disadvantages are the necessity for insulated conductors in the hole and, for azimuth readings, the use of an oriented string of rods.

Use of Electric Lights

In Wyoming, in cable tool holes, the practice of suspending electric lights every 50 feet of depth, down to 400 or 500 feet, has resulted in doing away with much of the trouble formerly experienced with the tendency of the holes to go crooked. If the hole is off plumb, as indicated by the light, it must be plugged back to straightness and redrilled. The operators have learned that, if the hole is made absolutely vertical to 500 feet, and the conductor is vertical, there is very little chance that it will deviate much as it is drilled deeper."

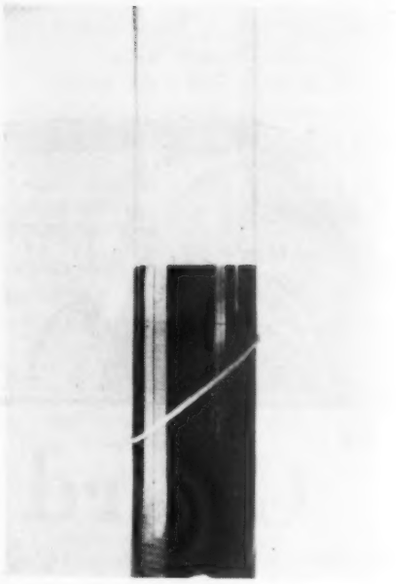

FIGURE 25

The Maas Compass

An instrument which has long been employed in surveying diamond holes, chiefly in mining districts, is the Maas compass, invented by E. E. White and George Maas.[30] It consists of a small magnetic needle swinging on a pivot attached beneath a small cork. This cork is floated in hot liquid gelatin in a bottle which is lowered in the well in a brass case screwed to one or two joints of brass pipe. The brass tubing[31] can be screwed to the

[29]Personal communications from Ray O. Armstrong and Fred E. Wood.

[30]References on the Maas compass are: Robert Peele, op. cit. E. E. White, "Surveying and Sampling Diamond Drill Holes." Trans. A. I. M. E., Vol. 44, pp. 69-90 (1912) P. 76. O. Hall & V. P. Row, op. cit. p. 413.

[31]Experiments have proved that such a compass is not affected by steel pipe or cable 10 ft. above the magnetic needle. See John I. Hoffman, "Recent Practice in Diamond Drilling and Borehole Surveying." op. cit., p. 494.

FIGURE 26

FIGURE 27

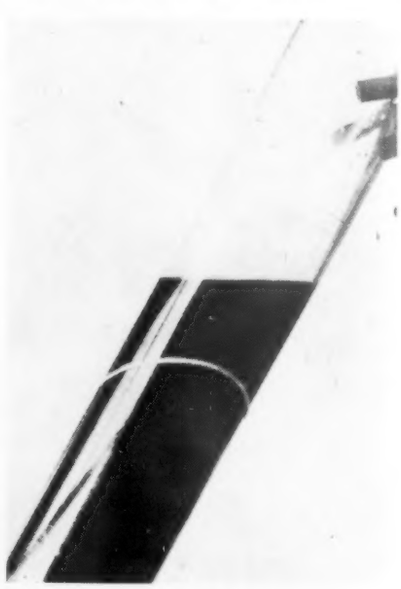

FIGURE 28

Don't let the *Weather* Man be *your* Production Man in 1929

Cold weather does *not* cut down production on the "electrified" well. Hot or cold, wet or dry—Electric Power performs dependably, efficiently, economically.

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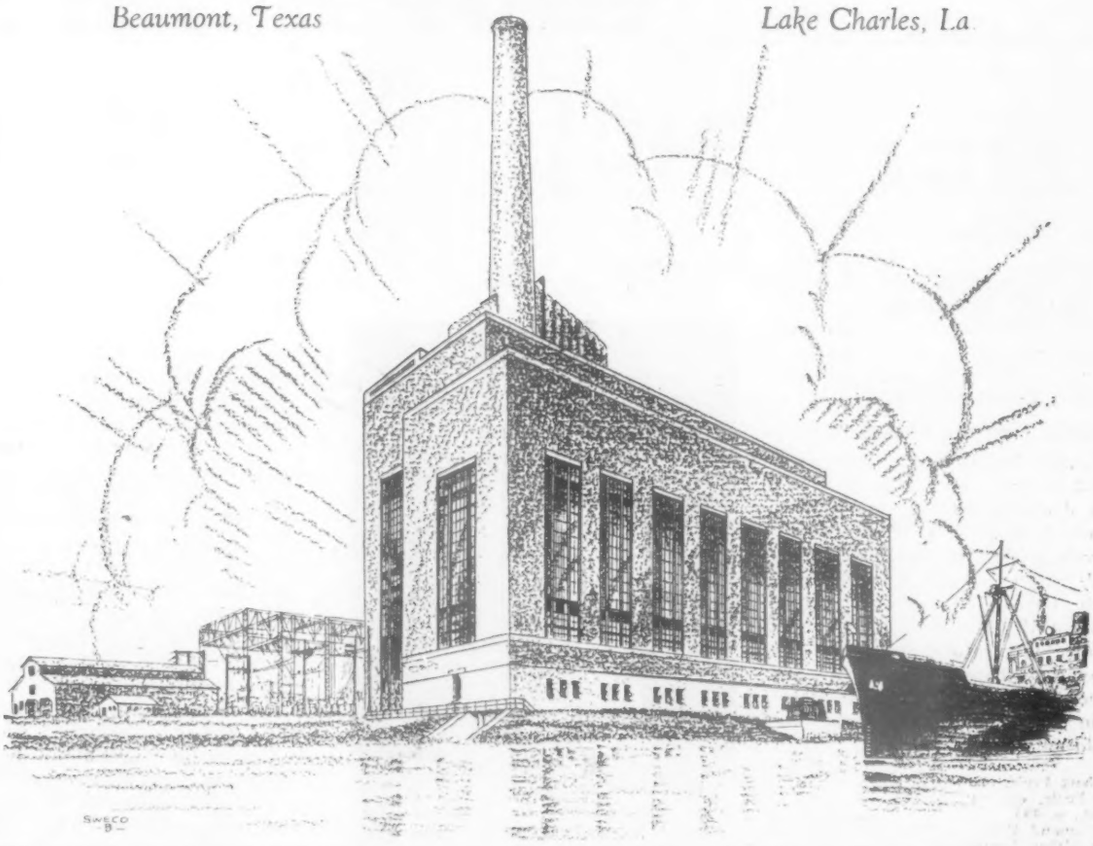


Under executive management of Stone & Webster, Inc.

Say you saw it in The OIL WEEKLY

FIGURE 29

FIGURE 30

FIGURE 31

lower end of a full string of steel rods, or it can be let down by a cable. When lowered to the desired depth, the apparatus is allowed to hang stationary long enough for the gelatin to harden, and so set the compass needle. The attitude of the surface of the gelatin may give an approximate idea of the angle of deviation, and the compass needle shows the direction. If preferred, the acid bottle may be used in combination with the Maas compass.

MacGeorge's Method

MacGeorge's gelatin method includes the Maas compass in one bottle and a plummet in a second bottle. Both the needle and the plummet are suspended in gelatin.[32]

Oehman's Apparatus

A more pretentious affair was invented by Oehman.[33] It was widely used in South Africa. It includes a battery, a clock, and photographic apparatus. The clock at a fixed time, completes an electric circuit which turns on an electric light and photographs the position of a plumb-bob and compass needle. Pin pricks mark the orientation of the photographs.

Oriented Drill Stem Methods

In 1873, one Oswald J. Heinrich[34] suggested that oriented cores might be secured, in diamond drilling, by using a flat rope which, he said, "would not twist." This is perhaps the first application of a suspended "string," oriented at the surface with the object of determining orientations at depth in a hole. He recommended hoisting carefully and noting the orientation of the core barrel on arrival at the surface. He was probably over-optimistic in his assumption that the flat rope would not twist.

Many years later a method for orienting drill rods was proposed by John Deacon, of Michigan, for use in diamond drill holes, where magnetic rocks in the hole to be present in the formations. The rods to be run in the hole were first laid out on the ground and screwed tightly together. The joints were then marked where they met, on top of the pipe. Next the stem was unscrewed at every second joint and was built up again and run into the hole in just the same order, watching the marks with care, as the couples were screwed up. At the lower end of the stem was attached a joint of pipe containing an acid bottle. The statement is made that, when the hole was straight the results were good, but if the hole was deep and crooked, the results might not always be satisfactory. In surveying the hole in this way, the pipe was raised and lowered a few feet several times to take out any possible twist.[35]

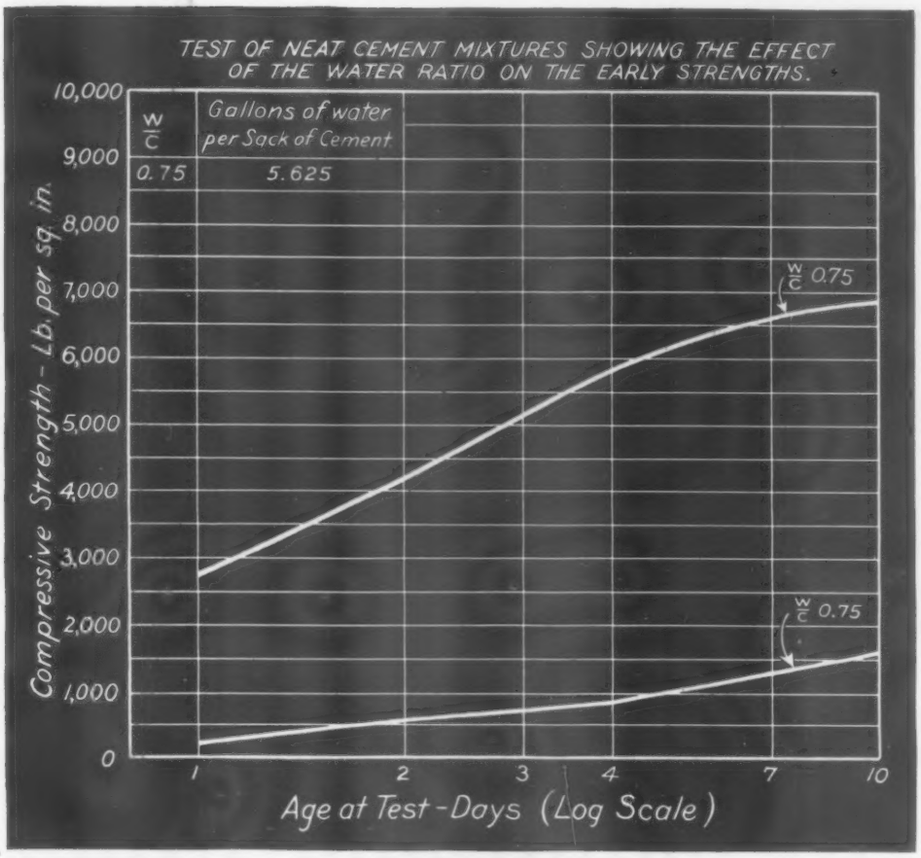
The most recent application of the oriented drill stem method is that invented by Alexander Anderson. It has been widely used by companies in California during the last three years. Just what the internal mechanism of his apparatus is few people know. We have been told that it contains one or two pendulums. The position of the pendulums is said to be recorded by photograph. The apparatus including the pendulums, photographic equipment, and timing and actuating devices is all contained in a water-tight casing which is constructed to be run into the well on the end of a string of drill pipe or tubing. The direction of inclination of the hole is determined by careful surveying of the drill stem or tubing at the mouth of the well, both in the lowering and, for a check, in the lifting of the pipe. To quote from Anderson,[36] "With the standard apparatus, 88 consecutive readings for inclination and direction of inclination may be taken during one lowering into the well. One reading is generally taken after each stand of pipe is lowered, or say, about 12 readings per thousand feet of hole. Usually 12 readings per hour are taken in a well."

Experiments with an oriented drill stem were tried in Texas, using acid bottles placed in the upset of the tool joint at every fifth fourble. The joints were screwed tight and the lower end plugged with babbitt metal to keep out water and mud. Although the drill stem was built up as rapidly as possible, two hours were consumed in running in. After all the bottles were in place, the stem was allowed to stand for four hours. In breaking out the drill stem, a target, marked off in degrees, was attached to the upper end of each fourble, close to the derrick floor. This was accurately surveyed, the stem was then hoisted, and the same target was again surveyed to correct for lean and rotation, at the fourble board, before unscrewing. At the same time another target, which was attached to the upper part of the fourble previously hoisted, was lowered and fastened to the next fourble

(Continued on page 78)

FIGURE 32

[32]See Robert Peele, op. cit., p. 370.
[33]Robert Peele, op. cit., p. 370. J. I. Hoffman, op. cit., p. 483.
[34]"The Diamond Drill for Deep Boring, Compared with Other Systems of Boring." Trans. A. I. M. E., Vol. II, pp. 241-263.
[35]E. E. White, op. cit.
[36]Alexander Anderson, "Notes on Underground Surveys of Oil Wells," read at New York meeting of A. I. M. E., Feb., 1928.



This curve represents Prestolith Velo Cement strengths taken from tests made by the Prospect Hill Laboratory of the Missouri Portland Cement Company.

$\frac{W}{C} = 0.75$

This curve represents Portland Cement strengths taken from an article appearing in the January 19, 1928 issue of Oil and Gas Journal and reproduced through their courtesy.

$\frac{W}{C} = 0.75$

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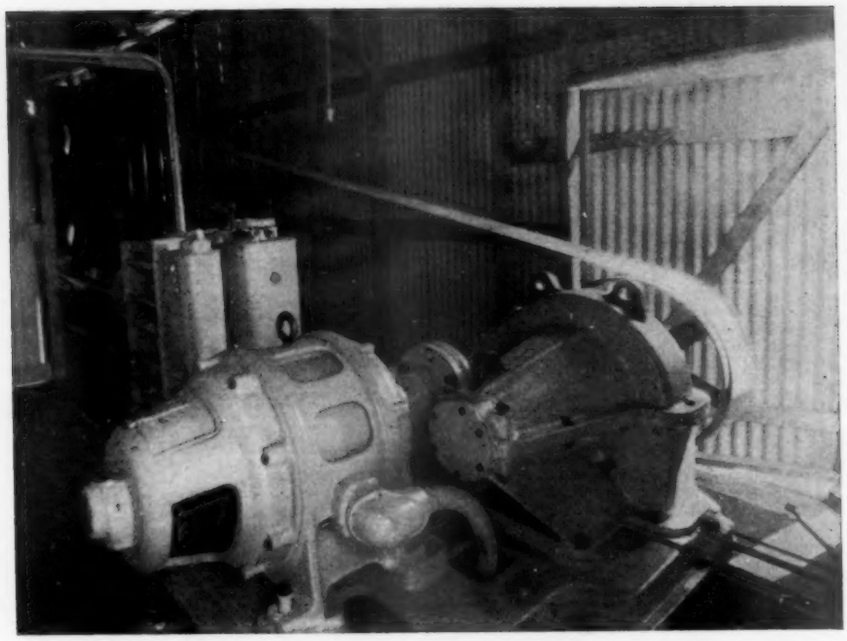

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Refugio Gas Field Originally Drilled for Oil

Later developments were for gas production and now again it is being drilled for oil

By JACK LOGAN
Staff Representative

HOUSTON.—The first dozen or so tests at Refugio, Refugio County, in the southern part of the Gulf Coast region of Texas, were drilled primarily for oil; the theory being that where there is gas there must be oil. None resulted in oil production. They only found troublesome gas sands, which caused repeated blowouts and wild wells. A couple of them were completed as gas wells to furnish fuel for further drilling for oil.

By 1924, it was generally concluded that the best, if not the only promise which Refugio offered was for gas production; and subsequent activity for a long period was directed almost entirely toward development of the gas reserve. Two large pipe lines were built to the field. It became an important natural gas source.

Last summer, an independent concern, the Texas Gas Company, went into a dry hole in the south end of the field, a test which had been drilled by the Houston Oil Company to 2400 feet without obtaining commercial gas production, and deepened it, with the hope of finding deeper gas. That was the Texas Gas Company's Clint Heard 1. Instead of gas, it found oil. The well came in July 28, 1928, making 700 barrels daily of 26.5 gravity Grade-A, coastal crude from a sand at 3682-3702 feet, in the basal Oligocene or possibly uppermost Fayette formation of Eocene age.

Early Theory Confirmed

Following the completion of that well, several other oil producers have been finished, including one each on the north end of the field and on the southeast side. The theory of the early operators has at last been confirmed, at least insofar as this particular field is concerned.

Development of oil production in what was for a long time considered only gas field, is particularly interesting because of possibilities to which it points. For farther down the Texas coastline, and across toward the Rio Grande are numerous fields, including the extensive White Point and Saxet fields of San Patricio and Nueces Counties, the new Aqua Dulce field of Nueces County, and the various fields of Webb, Duval and Zapata Counties; which as yet have produced only gas. If the history of Refugio should be repeated in all those areas, it would mean uncovering oil along an almost continuous zone from Refugio south and west to the borders of the state.

Total oil production at Refugio is now approximately 2000 barrels per day from seven wells, and several wells are drilling with the oil sand as the objective.

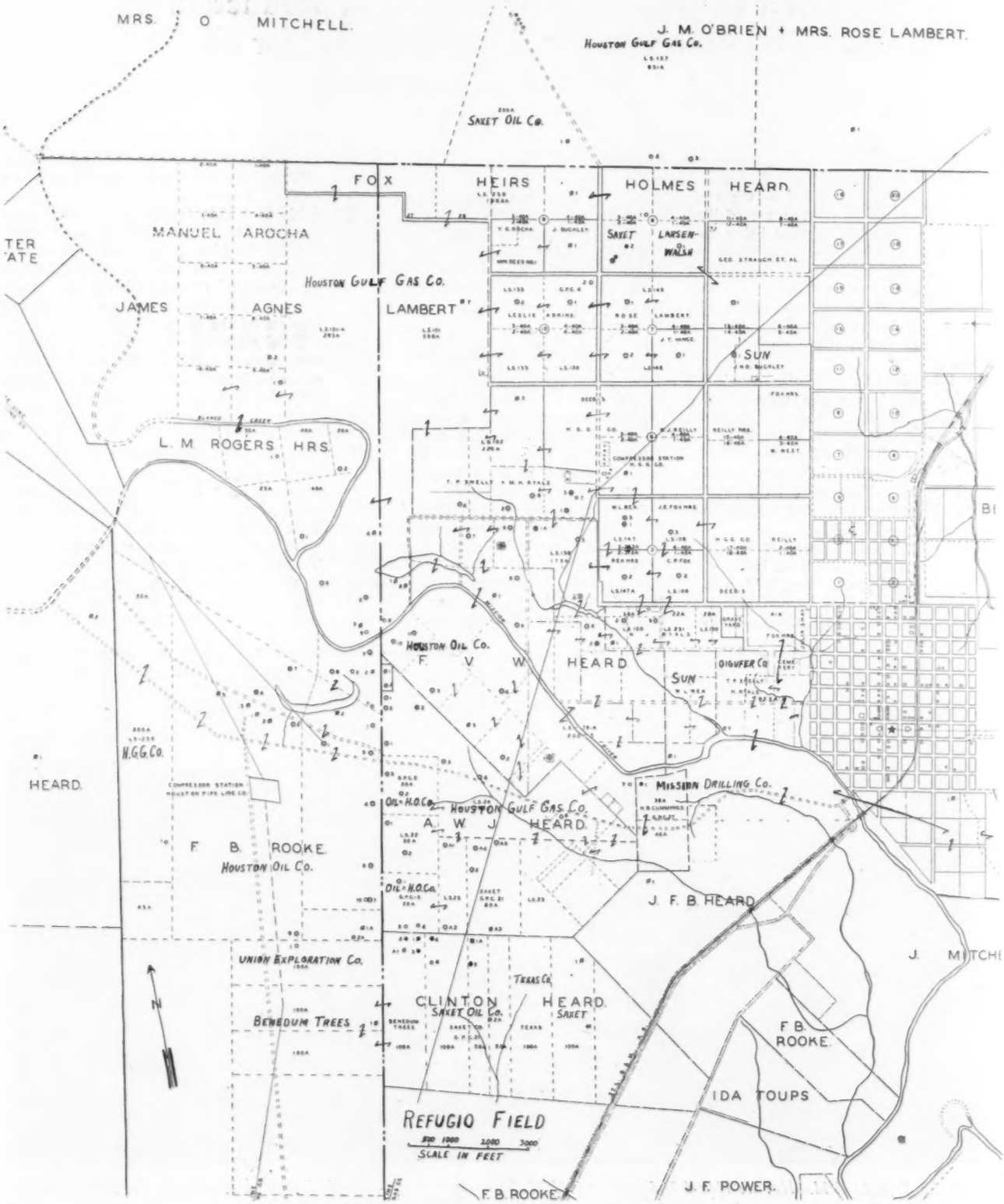
History of Producers

In the south end of the field there are five producing oil wells; including the discovery well, which eight months after completion is making 300 barrels daily. That well, together with the 100-acre lease on which it is located, was sold by the Texas Gas Company in September, 1928, to the Benedum Trees Oil Company for $300,000. The latter has since completed two other oil producers on the tract.

View of the Refugio field. Holmes Heard 2, discovery well of the north end of the field, drilled by The Texas Company and later sold to the Saxet Oil Company, is shown in the foreground

Benedum Trees Oil Company's Clint Heard 2, a west offset to the discovery well, is producing 300 barrels; and Clint Heard 3, a south offset to No. 1, is making 650 barrels. Besides the three oil producers of the Benedum Trees Oil Company, there are two others in the south end of the field, both belonging to the Saxet Oil Company. This company's Clint Heard 4, which is a direct east offset to the discovery oil well, is making around 80 barrels net oil; and its Clint Heard 5, located 250 feet south and 1250 feet east of the discovery oil well, likewise is flowing approximately 80 barrels net oil per day.

Shortly after completing the discovery oil well on the south end of the field, Texas Gas Company went into the extreme north end of the field, and began deepening an old well. This was its Holmes Heard 2, which had been abandoned by the Houston Gulf Gas Company as a dry hole at 2665 feet. The test was completed October 29, 1928, by the Texas Gas Company as a flowing well, making oil of 23.5 gravity, or about the same grade of crude as producers on the south end, the production coming from a pay stratum at 3687-3701 feet. It was first put on a half-inch choke, through which it flowed at the rate of 3000 barrels per day for several hours, when it was pinched



Map of the Refugio Field, Southwest Texas

n further and made 700 barrels daily on quarter-inch choke. With the exception of a gas well a quarter of a mile north of it, it is the most northerly producer in the field. From the Holmes Heard 2 to the group of producers in the south end of the field is 18,000 feet. The Holmes Heard 2, together with the 40-acre lease on which it is located, was sold by Texas Gas Company to the Saxet Oil Company, and is now producing around 200 barrels net oil daily.

Southeast Flank Producer

Texas Gas Company, discoverer of oil on both south and north ends of the field, is a Houston concern, its officers being R. A. Wolfe, president, R. H. Hawn, secretary-treasurer, and Herman F. Heep, vice-president.

The present producing oil well on the southeast side of the field is Mission Drilling Company's Cummings 1, which came in February 11, 1929, making 1000 barrels of oil from 3691-99 feet. It is flowing 350 barrels net oil daily through 8¼-inch casing, choked down, and shows 400 pounds pressure on the casing head. This well is making approximately the same amount of salt water as of oil. During the first 30 days after completion, it produced 10,000 barrels of net oil. Following completion of this well, ownership of the Mission Drilling Company was acquired by the United Gas Company (Moody-Seagraves interests), which also owns the Houston Gulf Gas Company.

Production of a high percentage of salt water along with the oil is characteristic of all producers that have been completed at Refugio. As a whole, the oil wells produce from 40 to 50 per cent. water. The water is, however, readily treated out. All wells are flowing and partially pinched.

Like the producers on the north and south ends, Cummings 1 is on the edge of the field, being an outside well on the southeast flank. Considering all these producers, it appears that the edges of the present field are particularly promising for oil development, as might be expected; that is, outside and beyond present gas production, but at lower levels.

There have been very few deep tests in the entire field, however; so there are not many logs upon which to base opinions as to the future of the field for oil production.

Deep Test is Dry

Following success in developing oil wells on the Clint Heard tract, Benedum Trees Oil Company moved a rig 2500 feet south and a little west of the discovery oil well and drilled Rooke 1, which was abandoned at 5140 feet without having had any showings of oil or gas. Directly offsetting Benedum Trees Oil Company's Clint Heard 1 on the north, Houston Oil Company failed to make a producer of Wilson Heard 4 in the 3700-foot oil and gas sand from which Clint Heard 1 is producing. The hole was deepened to 5000 feet without shows and abandoned. The deepest test that has been drilled at Refugio was the Houston Gulf Gas Company's Lambert 7 on the northwest flank of the field, 4000 feet west and 1250 feet south of Saxet Oil Company's Holmes Heard 2, the oil well on the north. Lambert 7 was drilled to 5235 feet and was dry all the way. It is 1200 feet west of the nearest gas producer, Houston Gulf Gas Company's Adkins 2.

Within limits of the gas producing area, there have been few tests which went more than 4000 feet. Although the main gas sand (or at least the one which was for a long time considered the main one), is at the depth of 2400 feet, there are numerous gas producing horizons at Refugio. Commercial gas production was obtained in sands ranging from 1500 to 2450 feet, considered to be of Miocene age; and good production has also been developed at depths between 3200 and 3700 feet, considered to be of Oligocene age.

Gas Development Continues

Although the recent activity at Refugio has been to develop oil production, development of the natural gas reserve has been continued without interruption. The field no doubt has greater proven reserves of gas than ever before as indicated by the fact that the Houston Gulf Gas Company plans immediate construction of a 16-inch gas line which will extend out of Refugio 106 miles to a point 22 miles east of San Antonio, and which will supply both domestic and industrial consumers in that territory. Also this line will supply the towns of Karnes City, Kennedy, Yorktown, Floresville, Falls City, Elmendorff, Saspamco and others along its route.

Refugio field includes an unusually large area, as compared with other Gulf Coast fields. From the most southerly producers to the most northerly is a distance of 21,000 feet or about four miles, and from east to west in its widest place the field is approximately 12,000 feet in width. If one should draw a square just large enough to take in all edge wells, it would comprise 5785 acres. Leaving out those sections on which there are not any producing wells: that is, closely figuring in only the area that has actually been proved productive, there are 4340 acres within the field. It is likely, furthermore, that the field will be extended on various sides. Among latest evidences of extension of production were gas blowouts in two edge wells being drilled by the Houston Gulf Gas Company. That concern's Rooke 1 in the southwest edge of the field had a blowout at 2400 feet; it is 4000 feet west of the nearest production. The same company's O'Brien 4, in the north end of the field, also had a gas blowout at 2400 feet. Also Mission Drilling Company's Mitchell 1, located one and one-half miles east from the Cummings 1, oil producer, has a gas showing at total depth of 4056 feet, which is being tested.

Refugio vs. Other Coastal Fields

Refugio was above compared with other Gulf Coastal fields in view of the fact that it is producing from the Oligocene, like most of the Coastal fields, and since it is located within the Gulf Coast region, although in the southern end of it.

Since it has heretofore been primarily a gas field, however, it differs from other Gulf Coast fields in that respect.

It more closely resembles Goose Creek than any other Gulf Coast field. Both are of large area, and in neither field has a salt dome been drilled into. The outstanding difference between them is that Refugio has non-marine formations of Miocene and Oligocene age, producing gas; and Goose Creek has more or less marine formations of the same relative age, with oil. But it must be recalled that considerable gas was in evidence in Goose Creek during its early development.

Refugio also bears considerable resemblance to Raccoon Bend, Austin County, which is producing both oil and gas. While it is possible that both Refugio and Raccoon Bend are over deep-seated salt masses, however, the general opinion is that they are both structural fields.

Market Outlets

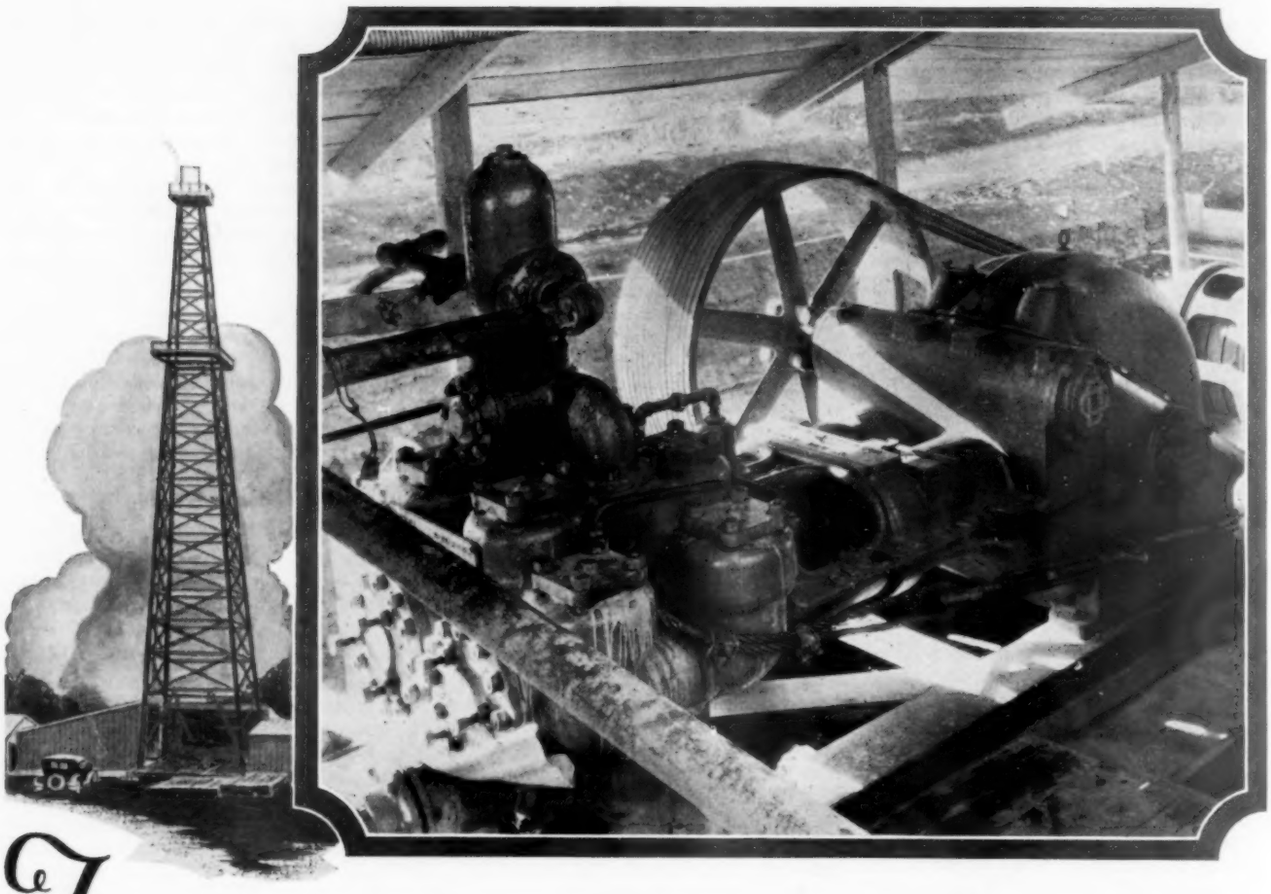
There is no pipe line outlet for the oil production at Refugio. The crude is moved to loading racks on the Missouri Pacific railroad, which runs alongside the field, and it is transported by tank cars to Houston.

Refugio's gas production is marketed by trunk pipe lines of two companies. Houston Pipe Line Company has a 12-inch line extending to its combination 16- and 18-inch line connecting Mt. Lucas, Live Oak County, and the Laredo district with Texas Gulf Sulphur Company's sulphur mine in Matagorda County and with Houston and industries along the Houston Ship Channel. That line out of Refugio was put in operation in September, 1925. The Houston Gulf Gas Company was organized in August, 1925, and on May 12, 1926, it completed a 154-mile combination 14- and 16-inch gas line from Refugio to Houston. Since then the line has been extended to serve industries along the Houston Ship Channel. These two companies have been the principal gas producers at Refugio, in addition to transporting all the gas that the field has produced.

During the period of a little over three years since construction of the two lines out of the field, they have withdrawn approximately 60 billion cubic feet of gas, or an average of around 20 billion feet per year. About two-thirds of the total has been marketed through the Houston Pipe Line Company line and the other one-third through that of the Houston Gulf Gas Company. The runs by years made by both lines have been roughly as follows:

Year	Cubic feet
1925	1,500,000,000
1926	17,000,000,000
1927	20,500,000,000
1928-29	21,000,000,000
Total	60,000,000,000

The following table summarizes the field activity at Refugio during its entire history. Wells listed as producers include only gas wells finished as commercial producers and the seven oil wells of the field. Those listed as blowouts may be considered as having been potential gas wells that were lost. Failures include



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tests that were non-productive chiefly because of location outside of the productive area.

Year	Completions	Producers	Blow-outs	Failures
1920-24	9	2	4	3
1925	17	6	7	4
1926	46	31	2	13
1927	40	30	..	10
1928	24	24	..	..
1929 (3 mos.)	7	5	..	2
Total	143	98	13	32

Above figures do not take into consideration any wells other than new holes, although many of them have been worked over or deepened from their original depth.

Refugio Has Several Sands

The large number of productive sands at Refugio are a distinguishing feature of the field, and will result in a particularly large ultimate yield of gas per acre. In most of the other gas fields that have been developed in South Texas there are only a few productive horizons.

The various sands, naturally, were productive to various degrees. The largest gas well of the field, it is said, was the Houston Oil Company's first test in the field, Rooke 1, which from a depth of 2392 feet tested 84,000,000 cubic feet daily production on an open flow test.

Because of the rather weak consolidation of the formations from which the gas is produced, that is, because the gas is from sands generally termed soft or loose, none of the wells are allowed to flow open lest they be ruined by sanding up.

There have been several craters at Refugio caused by gas blowouts. In the early period of development these blowouts and craters were due to lack of proper equipment and experience; and in later stages some were caused by unexpectedly encountering gas which had been released through blowouts in early tests from the original sands to shallow, upper sands.

Present activity at Refugio consists of 12 operations, including three tests outside of the proven field, in virtual wildcat territory.

History of Field

Refugio field is in the central part of Refugio County, and is only a little over a mile west of the town of the same name. Running across the field from west to east and dividing it into two approximately equal parts is a small stream named Mission River.

The first drilling in the area was for oil, which was indicated by gas bubbles at several places along Mission River, and by hydrogen sulphide gas in fresh water wells in the vicinity. The first test drilled in the district was the F. V. W. Heard 1 of the Texas Gulf Oil & Gas Association. It was located two miles northwest of Refugio, on the north side of the river, at a point which proves to be near the center of the productive area of the field as developed. The well was started in November, 1919, and drilled to 1902 feet by September, 1920, when it had a gas blowout that partially wrecked it. In January, 1921, it was cleaned out and re-conditioned as a small gas producer for local use as fuel for another drilling rig. The well gauged an open flow of 13,000,000 feet and had a closed in pressure of 420 pounds.

In 1920 another small company, the Pratt-Hewitt Oil Corporation entered the area with the primary purpose of drilling for oil; and with exception of a second test, a dry hole, by the Texas Gulf Oil & Gas Association, drilled every subsequent test at Refugio up to 1925. During that five-year period, the Pratt-Hewitt Oil Corporation put down seven tests, including six on the F. B. Rooke land and one on the W. J. J. Heard. All but two of those seven tests went through various high-pressure gas sands, and several had damaging gas blowouts. Only one out of the whole group of nine wells drilled by the Texas Gulf Oil & Gas Association and the Pratt-Hewitt Oil Corporation had gas production as its objective; and that one was simply for obtaining fuel for other drilling, with oil as the ultimate objective. Yet seven of the nine tests may be considered to have been potential gas wells, in at least one and possibly several of the sands encountered, provided they had been properly cased and screened. The total cost of the above nine wells was around $350,000.

Seagraves Attracted to Refugio

It was not until 1924, that the possibilities of Refugio for commercial gas production were considered seriously. O. R. Seagraves, who had previously entered the natural gas business by establishing a system for supplying Corpus Christi and nearby towns from White Point, made a preliminary contract with the Pratt-Hewitt Oil Corporation covering purchase of all gas from leaseholds of the latter, contingent upon the Seagraves interests' building a pipe line to Houston, a distance of 154 miles. Growing out of this agreement, the Houston Gulf Gas Company was organized by Seagraves interests in August, 1925, and the proposed line started. May 12, 1926, the line was put in operation. Original holdings of the Pratt-Hewitt Oil Corporation have passed largely into the hands of the Houston Gulf Gas Company, which after building its line from the field, also began to drill.

While the system of the Houston Gulf Gas Company was being worked out, a competing company, Houston Pipe Line Company, owned by the owners of the Houston Oil Company, entered the Refugio field. The latter had already built a trunk line from Mt. Lucas, Live Oak County, to a point near Edna, Jackson County, and thence south to the Big Hill, Matagorda County, dome, where Texas Gulf Sulphur Company was supplied with gas for fuel in its sulphur mining operations. The ultimate purpose of the company at that time was to extend the line also from Edna to Houston. (The branch to Houston and to neighboring points has since then been completed). Following completion of the Mt. Lucas-Big Hill line, the Houston Pipe Line Company, to assure an ample supply of gas, entered the Refugio field, building a branch from the trunk line to Refugio, a 12-inch line 20 miles long. That line took the first gas out of the field. It was put in operation September 11, 1925.

Since completion of the above two pipe lines, Refugio has been developed to take care of continued requirements of the sulphur mine and of new markets in Houston and the industries along the Houston Ship Channel. In the meantime, Houston Oil Company and Houston Gulf Gas Company have been practically the only producers of gas at Refugio, and the same interests market all the gas produced.

View of the Raccoon Bend Field, Austin County, Texas

New Mexico Begins Sale of Oil Rights Under New Act

SANTA FE, N. M.—The first public sale of leases on lands owned by the State of New Mexico under the new oil and gas act passed by the legislature is to be held April 10 at the capital building, according to B. F. Pankey, commissioner of public lands. This sale involves a total of 52 units, aggregating 12,068 acres, and all are less than a section in area. Companies and operators will have an opportunity to obtain leases in and near some of the government permit lands that have been ordered withdrawn from the market by President Herbert Hoover through this offering of state lands. The lands to be offered for oil and gas development at the first sale, which will take place at 2 p. m., are mostly confined to Lea County, but all are west of Range 34 East.

Lea County is the most popular area in New Mexico with lease and royalty buyers, but the bulk of the current activity on leasing and development work is situated east of Range 34 East, so cash bids submitted by companies and operators for leases put on the market for the April sale will probably not involve big bonuses. All but 1,534 acres of the land to be offered at the first sale carry a minimum annual rental of 50 cents per acre, while a separate filing fee of $5.00 must be paid by bidders on each tract. Bidders must submit application to make bid in due form, and the amount of bonus, or first year's rental offered together with required application fee.

Regular monthly sales of oil and gas leases are to be held in the future in accordance with the provisions of an Act of the Legislature of New Mexico that was approved on March 12, 1929. Sales are to be held on the tenth day of each month, or on the next business day following where the tenth falls on Sunday or a legal holiday.

In order to prevent companies or individuals from monopolizing a given area the new law required that not more than approximately 10,000 acres will be included in any one lease, while no one lease will be made for lands that will not fall within a 50 mile square.

"The question of the manner and mode of the issuance of the oil and gas leases by the State of New Mexico has been placed entirely in the hands of the legislature, according to B. F. Pankey, commissioner of public lands. The legislature has complete authority to prescribe the terms and conditions of leases, reserving royalty to the state. This change was made by the adoption of a constitutional amendment at the general election held November 9, 1928, with congress consenting.

"We regard this as a very important step, Commissioner Pankey adds, for the reason that heretofore there has been some uncertainty as to whether or not the legislature had full and complete authority in the premises. By the consent of congress to the proposed amendment and its adoption by the people, all uncertainty has been removed, and we feel that operators in New Mexico will now find themselves on much safer and surer ground as to state leases. Through the act passed recently by the legislature, all leases heretofore issued are expressly recognized as valid and binding contracts to be observed in accordance with their terms and conditions, and we think that we are now in much better position than we have ever been to deal with the oil and gas deposits on state lands."

Lea County, which occupies the south eastern corner of the state, has been the scene of heavy leasing and development campaigns within the past 18 months, and interest became stimulated through the establishment of a general trend of production, extending in a general north and south direction across the county from producing areas in West Texas. The bulk of the fee lands in Lea County are held by the State and United States Government. The latter's lands have been available for exploration through the issuance of drilling permits, which require the drilling of tests within a limited period to retain control of the seven-eighths mineral rights, but the Interior Department is now taking steps to shutdown on the sale of new permits, as well as to tighten up on its heretofore flexible policy regarding the granting of extensions, etc. on mineral permits now in effect.

Successful completion of more than a dozen oil, or gas producers on wildcat and semi-wildcat locations in Lea County, has resulted in the Southeastern part of New Mexico being designated as a restricted district. No oil and gas leases upon any state lands within the restricted area shall be sold except upon competitive bidding by sealed bids, or at public auction. The restricted district, as designated by the Ninth legislature, and approved March 12, 1929, is outlined as follows: Townships 1 to 10 south, Ranges 34 to 38 East; Townships 11 to 20 South, Ranges 26 to 39 East; and Townships 21 to 26 South, Ranges 25 to 39 East. This restricted area centers on and practically blankets Lea County, and no lands within the boundaries, according to the act, shall be eliminated therefrom by the commissioner of public lands, but when the interests of the state require such action, the commissioner shall extend the boundaries thereof and create other restricted districts and areas within which oil and gas leases may be made only upon competitive sealed bids, or at public auction.

A minimum annual rental after the first year for leases on land in the above described restricted area will be 50 cents per acre, except in the north end of the area, which will carry a minimum rental of 25 cents per acre annually after the first year. Acreage further removed from known and potentially producing lands are rated as third class, and carry a minimum rental of 15 cents annually, while all other state owned lands not included in designated districts have a minimum annual rental of five cents per acre after the first year, while the minimum first year's rental on any lease, as provided by the statute, regardless of size shall be $100.00.

The term of all oil and gas leases involving state owned land shall be five years and as long thereafter as oil or gas in paying quantities is produced from the leased lands. All leases shall provide for the delivery to the state in the pipe line to which the lessee may connect his wells, of a royalty of one-eighth of the oil and gas produced, or the equivalent proportion of the market value of such oil and gas at the time of production.

Texas Company Protests Government Order

Washington, D. C.—Continuation of its oil prospecting operations on government lands in New Mexico for another year, on the ground that approximately $600,000 has already been expended and 11 wells drilled without commercial production, was asked of the oil conservation committee of the Interior Department March 28 by representatives of the Texas Production Company. The hearing was the first held under President Hoover's recently announced oil conservation policy, under which the committee will pass upon 20,000 outstanding permits.

The Texas Production Company is a subsidiary of The Texas Company, the committee was told by Edward M. Freeman, who appeared as counsel, and 78 permits issued to individuals have been grouped because it would be impracticable to undertake extensive exploration work individually, The Texas Company undertaking the geological work under operating agreements with the permittees.

Despite the large sum of money already spent, the lands are still thoroughly unproven, he said, and the only way they can be further tested is by a group experimental program. It is planned to drill three additional wells this year, and possibly a fourth, if one of the wells now being drilled should prove a success.

Composite Catalogs Being Mailed Out

OUR COMPOSITE CATALOG of NEW and STANDARD OILFIELD and PIPE LINE EQUIPMENT began going into the mails last week. It contains 520 printed pages, including descriptive matter (no display advertising) on several hundred pieces of oil equipment, many of them new in design. It also contains the complete American Petroleum Institute Standardization Specifications, in a new and most convenient form.

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Santa Fe Springs Operators Agree On Output of 125,000 Barrels

LOS ANGELES.—Machinery was set in motion Friday, March 29, in Los Angeles to bring about the shutting in and pinching in of production in California to the daily average in the state throughout last year. The first step was undertaken under the direction and supervision of the umpire, F. C. Van Deinse, at a meeting of Santa Fe Springs operators, at which meeting it developed that the operators present, most representative of the field, were of one mind with reference to the curtailment program, although there is a possibility that there will be some discussion on the best plan or plans to be followed.

At the meeting Friday, representatives of the Standard Oil Company, Shell Oil Company, Union Oil Company and General Petroleum Corporation announced that their companies were ready to proceed at once to curtail their production in keeping with the order to be issued by the umpire, which probably will be forthcoming within the next 48 hours. The representatives were speaking only for the Santa Fe Springs situation, but it became known that the companies they represent will assume the same attitude with reference to curtailing in other fields of the state. Representatives of other larger companies were present but without authority to make immediate decisions, and they let it be known that they felt sure that their companies would fall into step without any doubt.

Mr. Van Deinse was named umpire by the American Petroleum Institute regional committee, having in charge the curtailment program for the West Coast. Mr. Van Deinse has no official connection with any oil company, but formerly was president of the Ventura Refining Company, which was taken over several years ago by the California Petroleum Corporation and served with that company in an important executive capacity until the latter was purchased by The Texas Company. Since that time he has been engaged in other lines. He is familiar with oil development conditions in California and is looked upon as a man with a keen insight into the problems to be faced, and fair in every way.

To Cut 40,000 Barrels

Acting under the assumption that the production at Santa Fe Springs this week will average around 165,000 barrels, the mark to shoot at is to reduce this production to 125,000 barrels, the average for last year. At the meeting Friday morning, the umpire brought the curtailment project to a head without any unnecessary words, and announced that he had asked A. C. Rubel, Union Oil Company; Vic Wilhelm, The Texas Company and B. E. Parsons, General Petroleum Corporation to assist in engineering and research, as these three men are outstanding engineers and thoroughly acquainted with field conditions.

Los Angeles.—At a meeting of the general committee of Santa Fe Springs operators held here April 2, a resolution was unanimously adopted that production of oil in Santa Fe Springs field should be curtailed to 125,000 barrels per day, effective from a date to be fixed by Umpire Van Deinse, and that production in the area be in the proportion that the total production on April 1 bears to 125,000 barrels—such proportionate production to continue until April 15.

Wells placed on production during this period will be allowed to flow uninterrupted for 10 days and then reduced in similar proportion. It was also decided at the meeting to ascertain production on the first and sixteenth of each month and to have a new proportion of reduction fixed accordingly by the umpire with aid of the inspectors.

F. C. VAN DEINSE

who has been appointed umpire for California by the American Petroleum Institute Regional Committee. He formerly was an oil company official but is not now connected with any oil company

It was expected that the Santa Fe Springs production will have to be reduced 24 per cent. to cut down to last year's average. Resolutions approving in general the plan for curtailment in California to last year's daily average of 650,000 barrels and approving the schedules previously outlined to bring about such result, were approved without a dissenting vote, it being stated that revision would be made from time to time at various fields in the matter of percentage cuts in production to meet conditions as new wells came in or old wells declined. It is the plan to hold the low production figure throughout the year.

One independent producer announced that he thought it would be unfair to force small operators to pinch in pumping wells in the older sands where the production is small and this matter is to be threshed out at a meeting of the operators' committee.

Operators' Committee Named

The Santa Fe Springs operators' committee to work in an advisory capacity to the umpire is composed of Oscar Howard, Paul Getty Wm. Keck, Ed Stearns, J. V. Westbrook, George Machris and Hubert MacMillan, all independent operators, representatives of several major companies having recommended that such advisory committee be composed of the smaller operators. This committee is to hold a meeting as soon as the umpire is able to bring about a full meeting, and soon after this first meeting it is expected that the umpire will issue his order. It is possible that such order can be issued in time to make it effective April 1.

Announcement of the four major company representatives that their companies would act immediately after the order of the umpire is issued, brought a spirit of optimism into the meeting. The four previously mentioned companies with Associated Oil Company, Richfield Oil Company and The Texas Company, control 254 producing wells with a daily average production of approximately 112,000 barrels, leaving only 53,000 barrels of daily production from 87 wells to the various independent operators. It is practically assured that the seven companies mentioned will start the curtailment program on their leases within three days at Santa Fe Springs and there will be sufficient independents to follow immediately to reduce the production of the field to around 135,000

(Continued on page 66)

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The Guiberson Tool Joint Tong is the unfailing master of tool joints. When brought into play, it grips *right now*, taking a hold that is unbreakable, save by a light blow on the latch, applied properly. This is a one-man Tong, balanced perfectly and made to close and latch automatically when jammed into place. It is instantly reversed without removing from the joint. Only five main parts, each massive and strong. The Guiberson Tool Joint Tong will show you all the Tong action you want, without going to China. *Fully patented.*

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Super TNEMECOL

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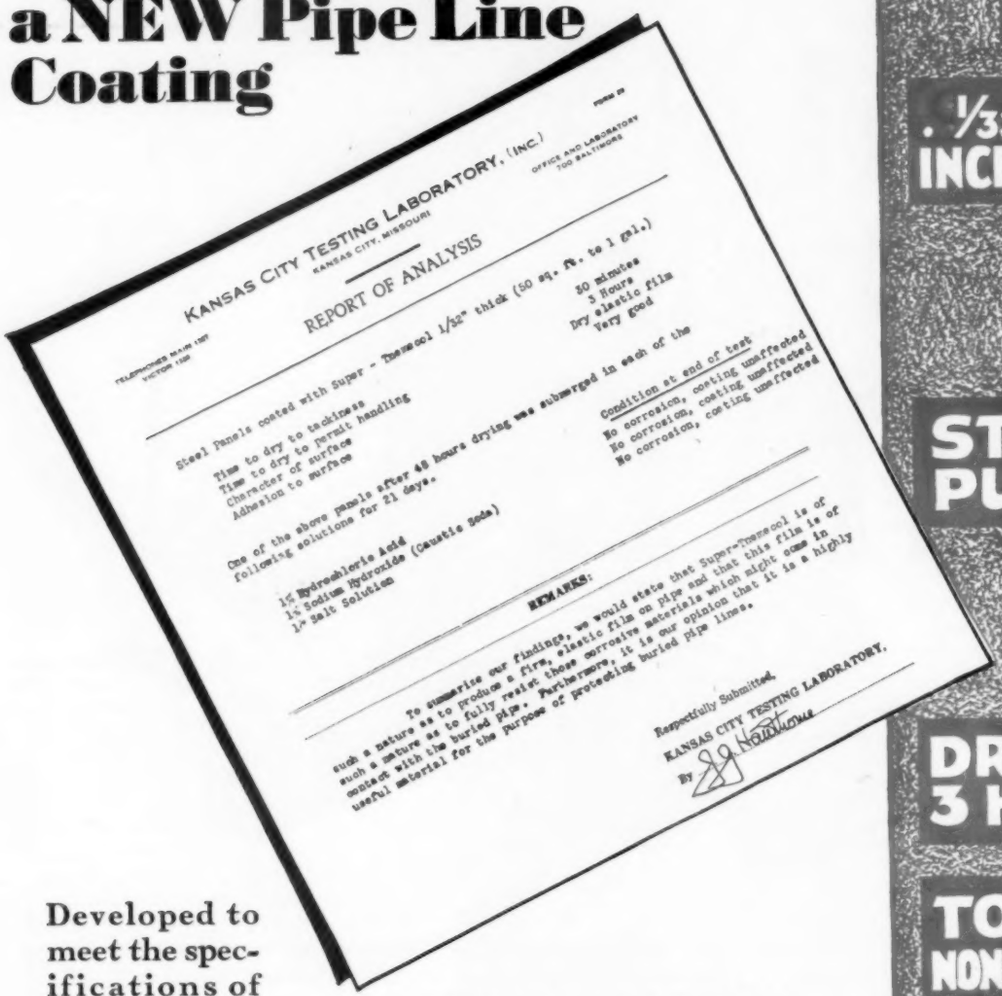

KANSAS CITY TESTING LABORATORY, (INC.)
KANSAS CITY, MISSOURI

REPORT OF ANALYSIS

Steel Panels coated with Super - Tnemecol 1/32" thick (50 sq. ft. to 1 gal.)

Time to dry to tackless — 30 minutes
Time to dry to permit handling — 3 Hours
Character of surface — Dry elastic film
Adhesion to surface — Very good

One of the above panels after 48 hours drying was submerged in each of the following solutions for 21 days.

	Condition at end of test
1% Hydrochloric Acid	No corrosion, coating unaffected
1% Sodium Hydroxide (Caustic Soda)	No corrosion, coating unaffected
1% Salt Solution	No corrosion, coating unaffected

REMARKS:

To summarize our findings, we would state that Super-Tnemecol is of such a nature as to produce a firm, elastic film on pipe and that this film is of such a nature as to fully resist those corrosive materials which might come in contact with the buried pipe. Furthermore, it is our opinion that it is a highly useful material for the purpose of protecting buried pipe lines.

Respectfully Submitted,
KANSAS CITY TESTING LABORATORY,
By [signature]

APPLIED COLD . . .

. . . WITH STIFF BRUSH

. 1/32 TO 1/8 INCH THICK

. . . . . AS DESIRED

STAYS PUT . . .

TACKY IN 1/2 HOUR

DRY IN 3 HOURS

TOUGH NON-FRACTURABLE COATING

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CONTINENTAL

Say you saw it in The OIL WEEKLY

Markets--Production--Crude Prices

H. J. STRUTH, *Staff Economist, Houston, Texas*

Production Figures Reveal Earnest Curtailment Efforts

SHARP declines in critical fields of Oklahoma, consistent success in meeting proration quotas in West Texas, and temporary stabilization of the production curve at Santa Fe Springs, California, seems to have imparted a feeling of optimism among operators in various sections of the country. In fact, the results of last week have been so encouraging to certain Oklahoma operators that reports are current to the effect that a better crude market structure is immediately ahead.

While it must be conceded that proration efforts are at last being conducted along serious lines, there is nothing on the horizon that can safely be capitalized in the form of an advance in the crude market. Those who are optimistic enough to prognosticate in that direction need only to weigh the following facts to realize that it will take more than the recent indications of a decline to result in a higher crude market:

Total production first quarter:
1929 . . . . . .239,720,000 barrels
1928 . . . . . .214,285,000 barrels

Excess of production to April 1, 1929, 25,435,000 barrels.

Excess daily average for first quarter of 1929, 282,611 barrels.

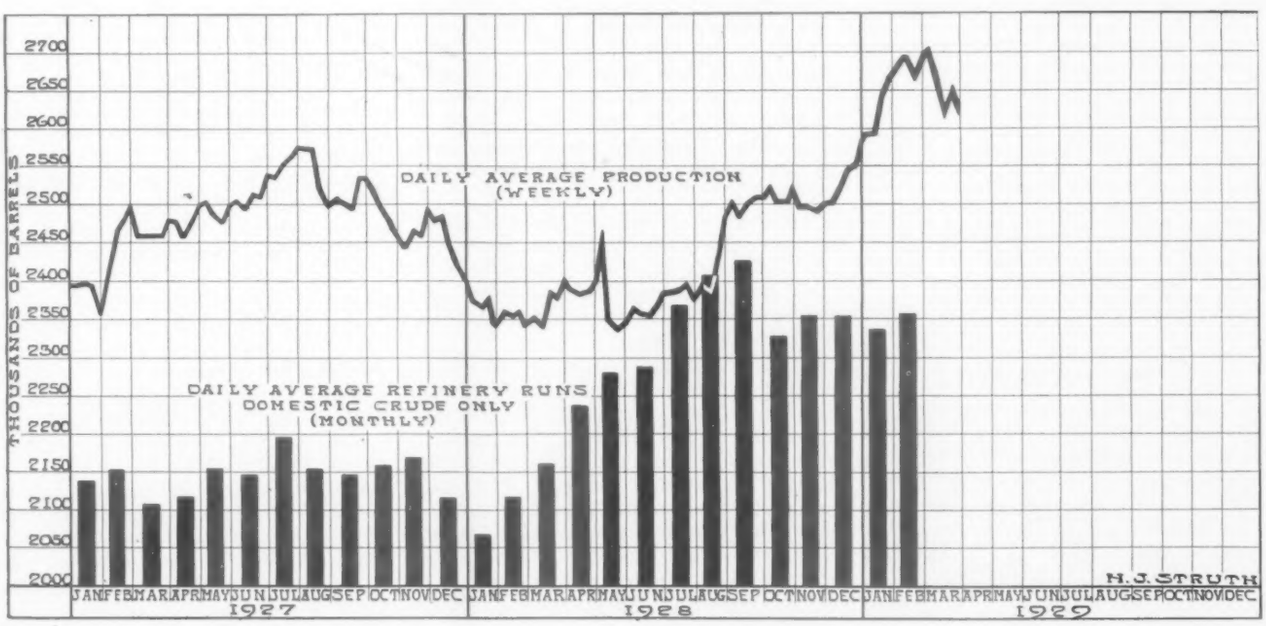
The above figures show that it will take considerable cutting of production schedules to realize the ideal set forth by the American Petroleum Institute, whereby production this year should not exceed the daily average of 1928. In this connection, the writer presented certain facts in the February 22 issue of THE OIL WEEKLY which indicated that the industry could not afford to allow the daily average production for this year to exceed 2,500,000 barrels.

Last week the daily average reported by the American Petroleum Institute aggregated 2,627,250, or in excess of 127,000 barrels above normal requirements. As a matter of fact, if the industry intends to parallel the output of 1928, it will be decidedly necessary to effect an immediate curtailment of 282,611 barrels a day, which represents the excess production for the first quarter of this year over the same quarter of last year. This means that there must be successive declines of substantial proportion to realize the desired situation. These facts serve to emphasize that any talk of an advance in the crude market is decidedly premature. In fact, the only real hope for the industry lies in the prevention of over optimism during the next few months.

Progress Encouraging

The fact remains that remarkable progress is being made in practically all sections of the United States, which of itself is encouraging. Where formerly, op-

REFINERY RUNS AND DOMESTIC PRODUCTION



DETAILS OF CRITICAL FIELDS

Pool	Wells Completed	Total Initial Production	Initial Per Well	Number Producing Wells	Daily Production Barrels	Daily Production Per Well	Rigs Up	Wells Drilling
WEST TEXAS—								
Hendrick	558	2,966,065	5,316	569	171,170	301[1]	4	26
Church & Fields	189	203,465	1,077	187	27,335	146	.	.
Gulf - McElroy..	72	56,615	786	72	12,595	172	.	2
Yates	308	2,023,910	6,571	302	87,635	290[1]	2	6
Totals 1,127		5,250,055	4,658	1,130	298,735	264	6	34
TEXAS PANHANDLE—								
Hutchinson County 1,153		550,560	478	1,006	25,325	25	6	16
Gray County . .. 339		142,250	420	326	26,440	81	14	37
Carson County.. 190		61,985	326	160	6,645	42	2	14
Wheeler County. 45		14,775	328	36	655	18	3	13
Moore County .. 11		6,145	559	9	1,825	203	2	12
Totals 1,738		775,715	446	1,537	60,890	40	27	92
OKLAHOMA—								
Seminole 1,840		2,280,075	1,239	1,477	259,573[1]	175	21	206
St. Louis 396		387,804	979	329	98,025[1]	297	8	76
CALIFORNIA—								
Santa Fe Springs[2] 158		492,000	3,114	120	137,000	1,141	29	175

[1] Pinched.
[2] Deep production only. For field total add 220 wells and 20,000 barrels.

erators were disinclined to favor cooperative effort to hold production within reasonable bounds, we now find that there is a unanimous movement to foster proration in practically all fields. Oklahoma has set about its task to curtail production in earnest, as evidenced by the production trend of its major fields. West Texas has demonstrated a remarkable degree of cooperative effort, particularly in Winkler County, by managing to maintain production schedules within the limits prescribed by proration orders. California operators have given assurance that they would take definite steps to bring about an immediate reduction in output, although in some sections, particularly at Santa Fe Springs, Elwood and Kettleman Hills, there are a number of operators who are reluctant to join the cooperative movement. On the whole, however, there is evidence of a decided determination in all fields to adhere to the plans being drawn up by the American Petroleum Institute. Judging from what is being accomplished in West Texas and in Oklahoma, there is little reason to doubt that the industry will, within a reasonable length of time, accomplish what it has set about to do. In the meanwhile, it must be borne in mind that any attempt to capitalize on the results of the immediate future cannot fail to entirely disrupt all efforts now being made to hold back excessive production.

Oklahoma Decline

Oklahoma contributed a decline of 33,300 barrels last week, when production declines were recorded in Seminole, Bowlegs, Little River, Earlsboro, St. Louis, Maud and Mission. Kansas also registered a decline of 800 barrels.

The Seminole district still remains the big factor, but its position is much smaller than a short time ago. A very interesting fact is the rapid decline in the average initial production of wells in this district. A short time ago the average initial production per well was around 1500 barrels, and had been even higher, today it has slumped to 1239 barrels per well and each week sees it dropping off from seven to 10 barrels. St. Louis is also falling sharply in average initial production per well and is down to 979 barrels.

These conditions should continue in both areas since there are no new extensions or pools in sight that promise anything of brilliance. The failure of Mission and Maud to prove of vital market importance has aided greatly in clearing up the situation. These fields both are apparently on the downward trend and leave Seminole entirely without new spots for development. A number of wildcats are drilling and remain a threat, however, it is generally believed that Seminole has seen its best days. The new north extension at St. Louis is experiencing much trouble with failures and is being defined to a small spot, upon which water is making heavy inroads on the producing wells.

Drilling development in the two areas is also falling off. At present there are 282 drilling wells in both Seminole and St. Louis, or several hundred below the peak. New wells are being started in much smaller numbers.

Intrusion of water upon the discovery well at Oklahoma City and its decline in production has materially dimmed the prospects of that district. Any further changes will await completion of other tests in the deep 6400-foot pay, which will not occur until another month. The shallow pays, namely Tonkawa and Layton, are fast passing out of the picture, without ever having done anything.

The Allen field outlook for big Wilcox sand production is also not bright, although other production than that already obtained is practically certain. The completion of a few additional tests in the southwest district of Allen will mean much to the industry.

In Kansas, the Valley Center field appears as if it will fall far short of the pool anticipated early in February. Completions are but able to hold production around 11,000 barrels daily. A large number of completions due within the next 30 days will probably boost this output, but not materially, unless a new rich spot is uncovered.

The refined market in Group 3 is stiffening up, although only small actual advances in prices have been made. U. S. Motor gasoline, 58-60, 437 end point, is at 7 to 7¼ cents this week, or a quarter of a cent higher than last week. Sixty-four-66, 375 end point is quoted from 8 to 8¼ cents per gallon. Last week gasoline stocks were drawn upon to the extent of nearly 1,500,000 gallons.

Kerosene continues to advance, is now from 6½ to 6¾ cents for 41-43 water white grade. Some refiners have no kerosene to offer.

Fuel oil demand is slumping, which is customary at this time of the year. It remains steady at $1.05 to $1.10 per barrel.

West Texas Decrease

Increases reported in the Panhandle, North, East Central and Southwest Texas, were more than offset by declines in West Texas and the Texas Gulf area. The state as a whole showed a decline of 900 barrels last week. Winkler County contributed largely to a decline of 5700 barrels in West Texas, while Salt Flat boosted the total daily average of Southwest Texas by 3550 barrels.

The general crude situation in Texas is assuming a stronger position, with a substantial cut in allowable production of West Texas flush fields. Crude purchasing agencies in the Texas Panhandle district have been particularly active in recent weeks in soliciting new connections, especially in Gray County, where the oil ranges from 38 to 44 degrees gravity, but an abbreviated gravity scale price applies when compared to Mid-Continent gravity scale prices. Shutting in of production to a greater extent in the West Texas district is certain to lead to active competition among local refineries, and independent and major transporters of this crude, while two new trunk line systems to the Coast are soon to be put in service by The Texas Pipe Line Company and Shell Pipe Line Company. The West Texas situation will be further benefitted when Gulf Pipe Line Company completes the 400 miles of new loops going into its original system, thereby boosting the capacity from 25,000 to 50,000 barrels daily.

Although the Salt Flat field, Southwest Texas district, is steadily reaching new production peaks, the demand for this crude is exceptionally good at the posted price of 80 cents per barrel, and the various companies making tank car shipments are attempting to increase their

(Continued on page 68)

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1928	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Ave.	United States Total
January	675,450	108,300	523,300	125,450	45,250	90,050	109,600	77,000	617,100	2,371,500	73,516,500
February	664,450	110,550	538,750	115,800	45,300	88,250	104,850	75,550	614,750	2,358,250	68,388,850
March	646,850	112,250	575,850	119,900	44,400	85,600	102,150	78,700	617,450	2,383,150	73,877,650
April	620,450	112,150	617,850	118,850	46,900	83,450	107,000	78,500	613,550	2,398,700	71,961,100
May	610,100	108,750	561,450	129,850	43,600	91,250	112,100	82,200	630,900	2,370,200	73,476,300
June	594,850	105,200	554,400	135,400	42,350	102,850	109,300	82,400	643,400	2,370,150	71,104,500
July	587,150	102,750	597,250	133,650	42,150	90,700	113,400	80,400	644,700	2,392,150	74,156,600
August	656,350	102,200	604,000	130,200	40,200	87,500	113,300	77,700	634,150	2,445,600	75,534,600
September	724,850	99,750	604,150	129,500	39,050	84,700	112,550	78,850	631,650	2,505,050	75,151,500
October	741,350	97,900	598,550	129,950	38,800	83,550	114,000	83,300	624,450	2,511,850	77,867,800
November	715,750	96,600	586,350	135,100	38,600	83,000	109,700	81,150	653,050	2,499,300	74,978,300
December	710,600	97,200	603,700	135,050	37,300	81,350	113,450	74,600	697,850	2,551,100	79,084,400
1929											
January	722,550	97,150	632,500	136,750	36,650	78,600	111,950	73,200	747,250	2,635,600	81,703,600
February	714,800	95,950	643,350	142,300	35,700	74,600	108,550	71,750	797,800	2,684,800	75,204,400
Mar. 2	713,000	95,700	659,750	143,500	35,700	74,400	107,100	71,950	801,800	2,702,900	18,920,300
March 9	680,250	95,400	660,500	144,600	35,650	73,600	108,000	70,850	795,300	2,665,950	18,661,650
March 16	649,450	96,450	654,550	150,200	36,050	74,500	108,750	65,550	789,600	2,625,150	18,376,050
March 23	677,650	94,950	667,150	148,750	35,850	74,700	109,250	73,400	773,900	2,655,600	18,589,200
March 30	644,350	94,150	667,800	148,150	35,700	74,250	109,750	71,200	781,900	2,627,250	18,390,750
Increase	.....	.....	650	.....	.....	.....	500	.....	8,000	.....	.....
Decrease	33,300	800	.....	600	150	450	.....	2,200	.....	28,350	198,450

TEXAS

(Outside Gulf Coast)

PANHANDLE DISTRICT

	March 30	March 23
Carson County	6,600	6,000
Gray County	26,400	23,900
Hutchinson County	25,200	26,150
Wheeler County	650	600
Others	1,850	1,500
Total	60,700	58,150

NORTH TEXAS

Archer County	16,800	16,900
Burkburnett	9,100	9,200
Electra	12,800	12,950
Iowa Park-K-M-A	5,700	5,600
Montague and Cooke Cos.	11,300	11,000
Wilbarger	27,600	27,500
Others	500	500
Total	83,800	83,650

WEST CENTRAL TEXAS

Brown County	8,700	8,750
Callahan County	3,700	3,700
Coleman County	3,650	3,700
Eastland-Desdemona	6,650	6,650
Jack County	1,550	1,600
Palo Pinto County	400	400
Shackelford County	13,300	13,000
Stephens County	6,150	6,200
Throckmorton County	600	600
Young County	6,950	7,050
Others	700	700
Total	52,350	52,350

WEST TEXAS

Crane-Upton Counties	49,200	50,050
Crockett County	2,150	2,200
Howard County	46,500	47,350
Jones County	6,200	6,200
Mitchell-Scurry Cos.	2,700	2,850
Pecos County	86,750	86,700
Reagan County	18,400	18,400
Winkler County	165,100	168,900
Others	1,850	1,900
Total	378,850	384,550

EAST CENTRAL TEXAS

Boggy Creek	3,450	3,200
Corsicana-Powell	8,250	8,300
Currie	500	500
Mexia	5,500	5,550
Nigger Creek	600	600
Richland	400	400
Wortham	1,200	1,250
Total	19,900	19,800

SOUTHWEST TEXAS

Dale	600	600
Laredo District	11,750	11,900
Luling	12,850	12,750
Lytton Springs	1,100	1,150
Somerset	600	600
Salt Flat	40,050	36,700
Others	5,250	4,950
Total	72,200	68,650
T'tl Tex. (Outside Gulf Coast)	667,800	667,150

TEXAS GULF COAST

	March 30	March 23
Barbers Hill	6,500	6,600
Batson	1,500	1,500
Big Creek	3,850	4,200
Blue Ridge	3,700	3,850
Boling	1,900	2,000
Damon Mound	900	850
Goose Creek	6,650	6,300
Hull	10,000	10,200
Humble	5,000	5,450
Orange County	3,000	3,200
Pierce Junction	12,200	12,500
Raccoon Bend	2,500	2,050
Saratoga	950	950
Sour Lake	2,800	2,750
South Liberty	6,000	6,250
Spindle Top	32,500	33,200
Sugar Land	10,450	9,150
West Columbia	7,950	8,250
Washington County	3,750	4,300
Others	4,500	4,600
Total	126,600	128,150
Texas Total	794,400	795,300

OKLAHOMA

Braman	3,300	3,300
Logan County	11,250	11,500
Blackwell	3,750	3,750
Hubbard	2,000	2,000
Thomas	960	900
Tonkawa	10,050	10,500
Garber	5,550	5,500
Burbank	21,850	22,400
Osage (outside Burbank)	25,300	25,450
Cushing	20,800	20,800
Yale Jennings	7,150	7,200
Davenport	1,500	1,500
Bristow Slick	19,400	19,350
North Okmulgee	14,300	14,600
Lyons Leaner	8,250	8,400
Cromwell	7,650	7,700
Papoose	3,400	3,400
Wewoka	4,900	4,950
Seminole	31,550	34,350
Bowlegs	32,900	35,850
Searight	9,850	10,750
Little River	72,200	80,500
Earlsboro	56,050	61,200
Duncan District	6,600	6,600
Graham	4,350	4,400
Fox	1,450	1,450
Healdton	13,000	13,000
Hewitt	8,200	8,250
Scholem Alechem	12,700	12,700
Pearson	1,700	1,700
St. Louis	98,750	100,650
Allen	26,150	26,300
Maud	27,600	31,300
Mission	24,050	30,150
Oklahoma City	3,850	3,250
Others	42,100	41,600
Total	644,350	677,650

CALIFORNIA

Santa Fe Springs	157,000	157,000
Long Beach	185,500	185,500
Huntington Beach	47,000	46,500
Torrance	15,000	15,000
Dominguez	10,500	10,500
Rosecrans	7,000	7,000
Inglewood	26,000	26,000
Midway-Sunset	72,000	72,000
Ventura Avenue	55,000	55,500
Seal Beach	42,500	34,500
Elwood-Goleta	28,500	29,000
Kettleman Hills	3,500	3,400
Others	132,400	132,000
Total	781,900	773,900

KANSAS

Greenwood County	20,300	20,500
Florence-Covert	950	950
Peabody-Ebling	2,900	2,900
Eldorado-Towanda	12,000	12,000
Augusta-Fox Bush	2,750	2,800
Rainbow Bend	1,000	1,000
Russell	3,100	3,100
Churchill	6,650	7,150
Oxford	5,600	5,600
Sedgewick	11,100	10,950
Others	27,800	28,000
Total	94,150	94,950

NORTH LOUISIANA

	March 30	March 23
Homer	4,000	4,000
Haynesville	5,450	5,450
Caddo Light	8,200	8,200
Caddo Heavy	3,300	3,350
DeSoto-Red River	3,950	3,950
Elm Grove	550	600
Bellevue	650	650
Cotton Valley	3,000	3,000
Urania	5,900	5,950
Pleasant Hill	450	450
Others	250	250
Totals North Louisiana	35,700	35,850

LOUISIANA GULF COAST

Bayou Bouillon	400	250
East Hackberry	3,200	6,600
Hackberry	2,850	...
Edgerly	900	950
Evangeline	850	850
Lockport	4,500	4,150
Sorrento	450	450
Sulphur Dome	3,000	2,100
Sweet Lake	400	400
Vinton	4,500	4,350
Others	500	500
Total Louisiana Gulf Coast	21,550	20,600
Louisiana Total	57,250	56,450

ARKANSAS

El Dorado	4,550	4,600
Champagnolle	10,050	10,100
Smackover Light	6,300	6,350
Smackover Heavy	49,550	49,850
Stephens	1,000	1,000
Nevada	1,250	1,250
Lisbon	1,450	1,450
Others	100	100
Total	74,250	74,700

MOUNTAIN STATES

WYOMING

Salt Creek	32,300	34,200
Grass Creek	2,350	2,250
Elk Basin	850	700
Big Muddy	2,250	2,350
Lost Soldier	3,350	3,250
Rock River	2,300	2,350
La Barge	1,750	1,750
Lance Creek	250	250
Oregon Basin	2,800	2,800
Others	3,200	3,300
Total	51,400	53,200

MONTANA

Cat Creek	1,400	1,400
Sunburst	5,300	5,300
Pondera	3,400	3,400
Others	100	100
Total	10,200	10,200

COLORADO

Moffats (Craig)	1,050	1,050
Fort Collins	2,500	2,700
Florence	1,050	1,050
Others	2,150	2,250
Total	6,750	7,050

NEW MEXICO

Table Mesa	300	...
Artesia	950	950
Hogback	400	500
Rattlesnake	850	1,150
Others	350	350
Totals	2,850	2,950
Totals Mountain States	71,200	73,400

EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.)	109,750	109,250

PRODUCTION SUMMARY

East of Rockies	1,774,150	1,808,300
Total U. S.	2,627,250	2,655,600

*A. P. I. Figures not available. Totals estimated by Oil Weekly.

CRUDE OIL PRICE QUOTATIONS

Revised April 2, 1929

CURRENT POSTINGS

EASTERN STATES

(Effective March 12, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Brandford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.35
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.80
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.75
Somerset Oil in Cumberland Pipe Line lines (Kentucky)	1.50
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky) (Effective Jan. 29, 1929)	.60
Keister (Pennsylvania)	1.20

CENTRAL STATES

(Effective January 25, 1929)
Posted by Ohio Oil Co.

Illinois	1.45
Indiana	1.27
Lima	1.50
Plymouth	1.18
Princeton	1.45
Waterloo	1.25
Wooster	1.62

WESTERN KENTUCKY

All grades	1.53

MID-CONTINENT

(Effective January 24, 1929)
Magnolia Petroleum Company

Under 26	.60
26 to 26.9 gravity	.65
27 to 27.9 gravity	.70
28 to 28.9 gravity	.75
29 to 29.9 gravity	.80
30 to 30.9 gravity	.90
31 to 31.9 gravity	1.00
32 to 32.9 gravity	1.08

From 33 to 44 gravity and above, Magnolia Petroleum Company prices are the same as those of Carter Oil Company.

MID-CONTINENT

(Effective January 25, 1929)
Carter Oil Company, Gulf Pipe Line Company, Sinclair Pipe Line Company, Prairie Oil and Gas Company and The Texas Company.

25 to 25.9gravity	.66
26 to 26.9 gravity	.72
27 to 27.9 gravity	.78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 and above	1.44

PANHANDLE

(Effective January 24, 1929)

GRAY COUNTY

(Humble Oil & Refining Company, Magnolia Petroleum Company, Gulf Pipe Line Company and Sinclair Pipe Line Company).

Below 29 gravity	.69
29 to 29.9 gravity	.75
30 to 30.9 gravity	.81
31 to 31.9 gravity	.87
32 to 32.9 gravity	.93
33 to 33.9 gravity	.96
34 to 34.9 gravity	.99
35 to 35.9 gravity	1.02
36 to 36.9 gravity	1.05
37 to 37.9 gravity	1.08
38 to 38.9 gravity	1.11
39 to 39.9 gravity	1.14
40 to 40.9 gravity	1.17
41 to 41.9 gravity	1.20
42 to 42.9 gravity	1.23
43 to 43.9 gravity	1.26
44 and above	1.29

WHEELER COUNTY

(Humble Oil and Refining Company and Magnolia Petroleum Company)

Below 30 gravity	.70
30 to 30.9 gravity	.76
31 to 31.9 gravity	.82
32 to 32.9 gravity	.88
33 to 33.9 gravity	.91
34 to 34.9 gravity	.94
35 to 35.9 gravity	.97
36 to 36.9 gravity	1.00
37 to 37.9 gravity	1.03
38 to 38.9 gravity	1.06
39 to 39.9 gravity	1.09
40 to 40.9 gravity	1.12
41 to 41.9 gravity	1.15
42 to 42.9 gravity	1.18
43 to 43.9 gravity	1.21
44 and above	1.24

CARSON-HUTCHINSON COUNTIES

(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Pipe Line Company)

Below 32 gravity	.72
32 to 32.9 gravity	.78
33 to 33.9 gravity	.81
34 to 34.9 gravity	.84
35 to 35.9 gravity	.87
36 to 36.9 gravity	.90
37 to 37.9 gravity	.93
38 to 38.9 gravity	.96
39 to 39.9 gravity	.99
40 to 40.9 gravity	1.02
41 to 41.9 gravity	1.05
42 to 42.9 gravity	1.08
43 to 43.9 gravity	1.11
44 and above	1.14

WEST TEXAS

(Humble, Gulf, Magnolia, The Marland Company and Southern Crude Oil Purchasing Company)*

Crane-Upton, Crockett, Pecos and Winkler Counties, all grades	.65

*Gulf does not post in Winkler County; Magnolia posts in Crane, Upton and Winkler Counties. Southern Crude Oil Purchasing Company posts only in Crane, Upton and Winkler Counties.

CALIFORNIA CRUDE OIL PRICES AT THE WELL

(EFFECTIVE JANUARY 18, 1929)

Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons infields indicated)

Gravity	Ventura *	Signal Hill	Alamitos Heights-Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Elwood † Terrace	Torrance	Richfield	Whittier La Habra	Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elks Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$ .85	$ .70	$ .70	$ .70	$ .70	$ .70	$ ..	$ ..	$ .70	$ .70	$ .70	$ .70	$ .70	..	$ .50	$ .50	$ .50	$ .50	$ .50	$ .50
15-15.9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
16-16.9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
17-17.9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
18-18.9	.85	.75	.75	.75	.75	.75	..	..	.75	.75	.75	.70	.75	..	.50	.56	.56	.56	.56	.56
19-19.9	.85	.80	.80	.80	.80	.80	..	..	.80	.80	.80	.75	.80	..	.50	.62	.62	.62	.62	.62
20-20.9	.85	.85	.85	.85	.85	.85	..	..	.85	.85	.84	.80	.84	..	..	.68	.68	.68	.68	.68
21-21.9	.86	.89	.89	.89	.89	.89	..	..	.89	.89	.88	.85	.88	.89	..	.74	.74	.74	.74	.74
22-22.9	.87	.93	.93	.93	.93	.93	..	..	.93	.93	.91	.90	.91	.92	..	.80	.80	.80	.80	.80
23-23.9	.90	.97	.97	.97	.97	.97	..	..	.97	.97	..	.95	.94	.95	..	.85	.85	.85	.85	.85
24-24.9	.94	1.01	1.01	1.01	1.01	1.01	1.01	..	1.01	1.01	..	.98	.97	.98	..	.90	.90	.90	.88	.88
25-25.9	.98	1.05	1.05	1.05	1.05	1.05	1.05	..	1.05	1.05	..	1.01	1.00	1.01	..	.95	.95	.95	.91	.91
26-26.9	1.02	1.09	1.09	1.09	1.09	1.09	1.09	..	1.09	1.09	..	1.04	1.04	1.04	..	1.00	1.00	1.00	.94	.94
27-27.9	1.06	1.13	1.13	1.13	1.13	1.13	1.13	..	1.13	1.13	..	1.07	1.08	1.07	..	1.05	1.05	1.05	.98	.97
28-28.9	1.10	1.17	1.17	1.17	1.17	1.17	1.17	..	1.17	1.17	..	1.10	1.12	1.10	..	1.10	1.10	1.10	1.02	..
29-29.9	1.14	1.21	1.21	1.21	..	1.21	1.21	..	..	1.21	..	1.13	1.16	1.15	..	1.16	1.16	1.16	1.06	..
30-30.9	1.18	1.25	1.25	1.25	..	1.25	1.25	..	..	1.25	..	1.16	1.20	1.20	..	1.22	1.22	1.22	1.10	..
31-31.9	1.23	1.30	1.30	1.30	..	..	1.30	..	..	..	..	..	..	1.25	..	1.28	1.28	1.28	1.14	..
32-32.0	1.28	1.35	1.35	1.35	..	..	1.35	..	..	..	..	..	..	1.30	..	1.34	1.34	1.34	1.18	..
32-32.9	..	..	..	..	..	..	1.41	..	..	..	..	..	..	1.35	..	1.40	1.40	1.40	1.22	..
34-34.9	..	..	..	..	..	..	1.47	1.16	..	..	..	..	..	1.40	..	..	..	1.46	1.26	..
35-35.9	..	..	..	..	..	..	1.53	1.22	..	..	..	..	..	1.45	..	..	..	..	1.30	..
36-36.9	..	..	..	..	..	..	1.59	1.28	..	..	..	..	..	1.50	..	..	..	..	..	..
37-37.9	..	..	..	..	..	..	1.65	1.34	..	..	..	..	..	1.55	..	..	..	..	..	..
38-38.9	..	..	..	..	..	..	1.71	1.40	..	..	..	..	..	1.60	..	..	..	..	..	..
39-39.9	..	..	..	..	..	..	1.77	1.46	..	..	..	..	..	1.65	..	..	..	..	..	..
40-40.9	..	..	..	..	..	..	1.83	1.52	..	..	..	..	..	..	..	..	..	..	..	..
41-41.9	..	..	..	..	..	..	1.89	1.58	..	..	..	..	..	..	..	..	..	..	..	..
42-42.9	..	..	..	..	..	..	1.95	1.64	..	..	..	..	..	..	..	..	..	..	..	..

KETTLEMAN HILLS—55 degree Gravity and above $1.65 per barrel. *Union Oil Company. †Changed March 18, 1929.

Turning "Cut Oil" Losses *into* Profits

No matter what your "cut oil" problem may be, you can positively have it solved . . . eliminated! . . . never again to confront you and cut into your profits. Apply "Petreco" electrical dehydration — a process successfully applicable to every kind of emulsion no matter how rebellious or viscous. "Petreco" does not crack the oil, but conserves to a high degree the lighter volatiles. It will recover all the oil from emulsion while restoring the entire production to its original gravity. Progressive operators everywhere are finding that "Petreco" dehydration means the end of "cut oil" losses—that it operates economically and produces definite profits.

Facts and figures in our booklet "The Electrical Process for the Dehydration of Crude Oil Emulsions." Send for it.

"PETRECO"

Say you saw it in The OIL WEEKLY

CRUDE OIL PRICE QUOTATIONS (*Continued from Page 50*)

(Magnolia Petroleum Company)
(Effective January 24, 1929)

Mitchell County	$ .65
Howard-Glasscock County (shallow)	.65
Howard-Glasscock County (deep)	.65

Col-Tex Refining Company

Howard and Mitchell Counties	$ .80

MARKHAM

The Texas Company
(Effective January 30, 1929)

All grades	.90

LULING

All grades	.80

NORTH AND CENTRAL TEXAS

Effective January 24, 1929)
Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs Crude
(Humble Oil and Refining Company)

Below 25	.60
25 to 25.9 gravity	.66
26 to 26.9 gravity	.72
27 to 27.9 gravity	.78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 and above	1.44

SOUTH TEXAS

Mirando and Salt Flat	.80

GULF COAST

(Effective January 26, 1929)

Grade "A" all companies	1.20
Gulf Coast Light Oil, below 25	1.05
25 to 25.9 gravity	1.07
26 to 26.9 gravity	1.09
27 to 27.9 gravity	1.11
28 to 28.9 gravity	1.13
29 to 29.9 gravity	1.15
30 to 30.9 gravity	1.17
31 to 31.9 gravity	1.19
32 to 32.9 gravity	1.21
33 to 33.9 gravity	1.23
34 to 34.9 gravity	1.25
35 to 35.9 gravity	1.27
36 to 36.9 gravity	1.29
37 to 37.9 gravity	1.31
38 to 38.9 gravity	1.33
39 to 39.9 gravity	1.35
40 and above	1.37

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crudes above 35 to $1.37 per barrel.

Magnolia Petroleum Company's postings stop at 31 to 31.9.

SOMERSET

Grayburg

Below 33 gravity	1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17

WYOMING-MONTANA

(Effective January 25, 1929)
Wyoming

Byron	1.33
Ferris	1.60
Elk Basin	1.36
Grass Creek	1.36
Rock Creek	1.18
Lost Soldier	.95
Lance Creek	1.38
Mule Creek	1.10
Notches	.65
Big Muddy	1.28
Osage	1.38
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.48
Lander	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

Salt Creek
Midwest Refining Company

29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 and above	1.23

MONTANA

Sunburst	$1.65
Cat Creek	1.48
Lake Basin	2.20

NEW MEXICO

Artesia	1.08
Hogback	1.43

CANADA

(Effective January 26, 1929)

Oil Springs	1.97
Petrolia	1.90

LOUISIANA-ARKANSAS

(Effective January 26, 1929)
Homer, Haynesville, Caddo, El Dorado, De Soto and Crichton and Cotton Valley*
(Atlantic Oil Producing Company, Standard of Louisiana, Magnolia Petroleum Company and The Texas Company.)

27 to 27.9 gravity	.78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 gravity and above	1.44

*Shreveport-Eldorado's postings stop at above 40 gravity.

The posting on Cotton Valley is same as Caddo. From 36 to 52 and above the regular gravity schedule is followed.

The Texas Company pays North Texas gravity scale in North Louisiana.

STEPHENS

(All Companies)

Below 28 gravity	* .70
28 to 28.9 gravity	.74
29 to 29.9 gravity	.78
30 to 30.9 gravity	.82
31 to 31.9 gravity	.86
32 gravity and above	.90

SMACKOVER

(All Companies)

Below 24 gravity	.75
24 and above	.90
Bellevue	1.25
Jennings	1.15
Vinton	1.30
Edgerly	1.30
Starks Dome	1.30
Urania	.85
Calion	.75

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

American Petroleum Institute Figures (Barrels of 42 Gallons)

	Week Ended March 23	Week Ended March 16
AT ATLANTIC COAST PORTS—		
Baltimore	72,000	62,000
Boston	77,000	*289,000
New York	929,000	*1,159,000
Philadelphia	116,000	386,000
Others	147,000	*219,000
Total	1,341,000	2,115,000
Daily Average	191,571	302,143
AT GULF COAST PORTS—		
Galveston District	.....	.....
New Orleans and Baton Rouge	145,000	211,000
Port Arthur and Sabine District	72,000	.....
Tampa	.....	.....
Total	217,000	211,000
Daily Average	31,000	30,143
AT ALL UNITED STATES PORTS—		
Total	1,558,000	2,326,000
Daily Average	222,571	332,286
Daily Average Four Weeks Ended	274,393	272,607

RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

American Petroleum Institute Figures (Barrels of 42 Gallons)

	Week Ended March 23	Week Ended March 16
AT ATLANTIC COAST PORTS—		
Baltimore	412,000	.....
Boston	30,000	.....
New York	82,000	145,000
Philadelphia	78,000	80,000
Others	65,000	.....
Total	667,000	225,000
Daily Average	95,286	32,143
AT GULF COAST PORTS—		
Total	.....	.....
Daily Average	.....	.....
AT ATLANTIC AND GULF COAST PORTS—		
Total	667,000	225,000
Daily Average	95,286	32,143
Daily Average Four Weeks Ended	78,286	61,964
Distribution of Total California Oil Receipts is as follows:		
Crude	.....	.....
Gasoline	667,000	225,000
Gas Oil	.....	.....
Total	667,000	225,000

*Revised.

Which of these *three* gasolines is best *for you?*

HERE are three gasolines made *to keep pace* with engine improvement and *give superior engine performance!*

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PERSONAL MENTION-MEN YOU KNOW

Harry Mack, geologist for Sunray Oil Company, has been in the field for a couple of weeks, during which time he visited the company's large holdings in Allen field district and other places in Oklahoma.

D. T. Ring, consulting geologist of Columbus, Ohio, spent the past week in the Mount Holly district, Arkansas, where a new field was opened recently on a structure outlined by Ring. The discovery well was drilled by Charles McDonald and associates on the Wilson farm in Section 25-15-18.

Chas. D. Wagner, vice president in charge of sales for Emsco Derrick & Equipment Company, with headquarters in Los Angeles, left California March 25 on a tour of the various active oil centers of the United States and expects to be absent at least a month.

W. A. Davis, sales manager for Baker Oil Tools, Inc., in the Houston territory, spent several days late in March in Los Angeles confering with officials of the company, and learning first hand of some new Baker equipment soon to be announced.

S. B. (Slim) Sargent, Jr., assistant manager of the Sargent Engineering Company, manufacturer of oil field specialties, is rejoicing over the birth of a daughter March 22, providing a playmate for his son, now two years of age. Slim some three years ago completed his petroleum engineering course at University of California.

Harry Mack, geologist for the Sunray Oil Company, has returned to Tulsa after spending almost two weeks in the field, during which time he visited the company's large holdings in the Allen district of southern Seminole and northern Pontotoc Counties, Oklahoma, in addition to other places.

Lew H. Wentz of Ponca City has accepted temporarily appointment of chairman of the Oklahoma highway commission by Governor W. J. Holloway. Wentz will assume the chairman's responsibilities for a 90-day period. If they are found to conflict too greatly with his private interests, he will resign.

S. P. Tachappat, general manager of the Hercules Tool Company of Tulsa, who has been confined to his home during the last 10 days on account of serious illness, is much improved though he will be unable to resume his work in the field for another 10 days or two weeks.

C. M. Ballard of Chicago, vice-president and general manager of sales of the Williamsport Wire Rope Company, spent last week-end in Houston and vicinity, visiting the Houston office of the company, which is in charge of Raymond Ford. Mr. Ballard was enroute to California.

John P. Bech, president of the Southern Gas Company, Houma, Louisiana, paid Shreveport a short visit last week, enroute home from Chicago. He plans drilling several tests for gas around Houma shortly.

N. C. McGowan, vice-president, Palmer Corporation of Louisiana, Shreveport, was called to Chicago last week by the death of his mother, Mrs. E. J. McGowan.

Louis H. Freedman, chief geologist of Snowden & McSweeney Company, Fort Worth, was a visitor in North Louisiana, March 28th.

W. C. Trout of Lufkin Foundry & Machine Company, spent a day last week in the Boggy Creek field, Anderson-Cherokee Counties, Texas, where he installed a new Lufkin pumping unit for Humble Oil & Refining Company.

Conrad G. High, who for the past 10 years has been associated with the Penn Planing Mill Company, has been appointed to the sales staff of the Reading Iron Company's Reading district office.

A. C. Knight, formerly of the Oversole Rubber Corporation, New York City, has been added to the selling staff of the New York office of the Reading Iron Company.

A. I. Brainard, president of the Beaumont Iron Works Company, Beaumont, Texas, is making a business trip through North Texas and Oklahoma territory.

W. H. Geis, vice president and general manager of the Continental Oil Company of Arizona, was operated on for appendicitis March 23. "Bill" is recovering rapidly from the effects of the ordeal.

Through an oversight, The Oil Weekly failed to acknowledge its indebtedness to Messrs. D. K. Weaver, G. I. McBride and H. Strader, field geologists for The Texas Company, for the Cross Section of Formations of Santa Fe Springs, which appeared on pages 56 and 57 of the issue of March 22.

Officials of the Pan-American Petroleum & Transport Company, including Fred H. Kay, C. H. Wegemann, chief geologist, and Ralph H. Soper, manager of land and leasing department, departed from Fort Worth late last week for their New York City headquarters, after spending the previous week inspecting the various West Texas properties of the Southern Crude Oil Purchasing Company and Southern Pipe Line Company.

J. H. Jenkins, general manager of the producing and land departments of the Associated Oil Company of California, arrived in Fort Worth early this week on his first visit since being detached from the Tidal Oil Company as vice-president in charge of Texas operations to assume a position of greater scope with the West Coast subsidiary. J. R. Gahan, formerly head of the land department in the Fort Worth division, has succeeded Jenkins as manager of Texas operations.

Alf G. Heggem, president of The Oil Well Improvements Company, Tulsa, has returned from a visit to the Michigan fields. J. Burr Gibbons, vice-president of the company is back in Tulsa from a 2500 mile trip through West Texas and New Mexico.

John L. Hamilton, Advertising Manager of the International Derrick & Equipment Co., Columbus, Ohio, has returned to Columbus after a visit to the Texas fields.

E. M. Skeehan, auditor of Barnsdall Oil Company, has been spending some time in California in connection with company affairs.

Houston Wildcats Re-Elect; Plan Dinner

Houston.—Houston Wildcats re-elected last year's officers at a meeting of the committee at the Houston Club last week. John R. Suman was re-elected chairman; Ray Dudley was re-elected secretary, and Colonel R. C. Kuldell was re-elected treasurer. Members of the Houston Wildcat organization are:

John R. Suman, T. J. Donoghue, Adrian Moore, George Noble, W. L. Childs, A. B. Judd, Craig Cullinan, W. B. Sutton, R. C. Kuldell, Todd Sloan, Joe Russell, Bob Ames and Ray Dudley.

At the meeting, Mr. Suman was decorated with the "oily order of the Pretzel," first twist degree.

Decision was made to hold a big banquet in Houston some time in April "for no good reason, with no speeches and everybody pay for his own dinner." Announcement of the rate and a cross section of the entertainment will be made later.

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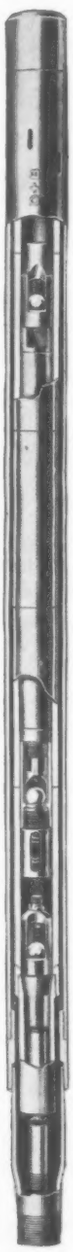

Fig. 21

FIG. 1

Simplex Insert Pump—Low cost in operation and particularly adapted to deep-well pumping. When the last stand of rods is pulled the entire working parts are on the derrick floor—ready for inspection or replacements.

FIG. 9

D & B Standard Parker Style Pump with 4-cup upper extension and Thompson Gas Valve especially adapted in cases where a fine floating sand is encountered.

FIG. 12

D & B Standard Parker Style Pump with 4-cup lower extension, Thompson Gas Valve and Volume Standing Valve. Due to large intake of Standing Valve, this pump is recommended for use where there is a large amount of fluid, such as oil and water.

FIG. 21

D & B, C & W Style Pump, with Thompson Gas Valve especially adapted for use in wells troubled with gas locking.

Fig. 12

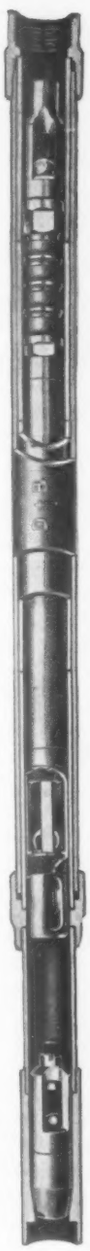

Fig. 9

Fig. 1

All Emsco and D+B Products (Except Derricks) Sold Exclusively in Mid-Continent Fields by The Continental Supply Company

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Oklahoma--Kansas Field Notes

WARREN BAKER, *Staff Representative, Tulsa, Oklahoma*

Salt Water Condemns Shallow Sand At Oklahoma City

TULSA.—All four wells in Oklahoma City field that have tested the Layton sand have found salt water. These wells, located north, west and south of the discovery producer, leave little to be expected from the shallower sands. The apparent passing of the shallow sand production, heretofore ranked quite highly by a number of oil men, robs the new producing area of what might have been an important producing factor.

The discovery well found 25,000,000 feet of gas in the Tonkawa sand and 45,000,000 feet of gas with some oil in the Layton. It has been quite disappointing that the large gas flow was missing in the others that have tested the Layton. General belief is that the casing may have been set too deep into the horizon, cutting off the gas, which is probably in the top, with water underlying. The discovery well failed to find the heavy salt water flow present in the wells now testing out the Layton.

Layton Zone Has Water

During the past week two additional tests drilled out the cement plugs to examine the Layton. They found water. Both tests last week were of great importance, since they were located north of the discovery well, the direction in which the producing structure is thought to run. The Mid-Kansas Oil & Gas Company's (formerly Ramsey Brothers) Fortson 1, C SW NE Section 24-11-3w, one-half mile northwest of the producer, cemented nine-inch casing at 4954 feet, with a total depth of 5002 feet. It was drilled in with standard tools and had a large amount of brine water. Efforts to exhaust the water by bailing failed. This test is putting rotary tools back into the hole and will drill ahead to the deep sand. It will have to go about 1400 feet. A very hard cap rock is anticipated just above the producing horizon, since it was found in the original well.

The second well to find water in the Layton during the past week was the Indian Territory Illuminating Oil-Foster Petroleum Company's Trosper Park 1, (Community test) in C NE SW Section 13-11-3w. Total depth in this hole is 4940 feet. It found no trace of oil or gas.

Tonkawa Sand Test

Indian Territory - Foster's Emerson-Joyce 1, NEc Section 25-11-3w, one-quarter of a mile due north of No. 1, Fee, the producer, and which was the first well to show water in the Layton, will not be drilled deeper. It is being plugged back to 4166 feet in the Tonkawa sand and will make a thorough test of that horizon. The outcome of this step will be important, since most of the tests have been passing that horizon for the Layton, which looked much better in the original test. This well is running lower than the discovery well and the decision to plug it back rather than deepen it is thought to indicate the owners disbelief in the southern direction.

The other test to show water, Indian Territory Illuminating Oil-Foster Petroleum Company's Foster 1, C NE SW Section 24-11-3w, will not deepen until further testing of the Layton has been completed.

Production of the discovery well was slumping again last week and water intrusion was increasing. Neither change was at an alarming rate. Production of the well, Indian Territory Illuminating Oil-Foster Petroleum Company's Fee 1, C SE SE Section 24-11-3w, was down to below 3700 barrels, while making 190 barrels of water. It continues to flow on compressed gas pressure.

A large number of additional tests are due to penetrate the Layton series next week. Several of these do not look very encouraging.

Tulsa.—Greater Seminole potential production gauge for the period from April 1 to 16 is 426,257 barrels, according to scout figures. Umpire Ray Collins says that the actual potential may be slightly higher after he has received the potential of each individual lease. This is a decline of approximately 18,000 barrels from the previous gauge taken two weeks ago. The same percentage of proration will be used this period as last, which should bring about a reduction in production of approximately 4000 barrels daily.

Production at Seminole is running more than 80,000 barrels daily below the above potential figure.

The potential gauges by fields is as follows:

Little River, 91,237 barrels;
Carr City, 12,977 barrels;
Maud, 20,415 barrels;
Mission, 35,655 barrels;
Bowlegs, 43,781 barrels;
Earlsboro, 69,915 barrels; ;
Seminole City, 43,324 barrels;;
Searight, 12,109 barrels;
St. Louis, 132,844 barrels.

A meeting of Seminole producers has been called for Friday in Tulsa at which time steps are expected to be taken to extend the shutdown program which expires May 1. At the same time steps are likely that will call for a percentage proration of all wells in the state making over 100 barrels daily.

Well in North St. Louis

Sinclair Oil & Gas Company's Nesbit 3, NW SE NW Section 18-7-5, one-quarter of a mile west of T. B. Slick's discovery producer of St. Louis' north extension area, quite surprisingly encountered a big flow. The well did 5610 barrels in 24 hours after being put on gas pressure. Wilcox sand was found at 4105-18 feet. This is the first big well in the area since the finding of production by Slick. The new producer is not expected to materially increase the market importance of this extension.

The shallow sand (either the Cromwell or Gilcrease) found south of Little River was given additional interest last week, when Independent Oil & Gas Company's Carpenter 1, NEc Section 27-7-6, northwest of the other shallow producers, was deepened one foot and increased its production 900 barrels daily to 1973 barrels. The sand was encountered at 3105 feet and penetrated to 3122 feet. Additional development is anticipated in this region as a result of the fine performance of this new well.

The Wilcox sand southeast extension to Little River field was shut off from

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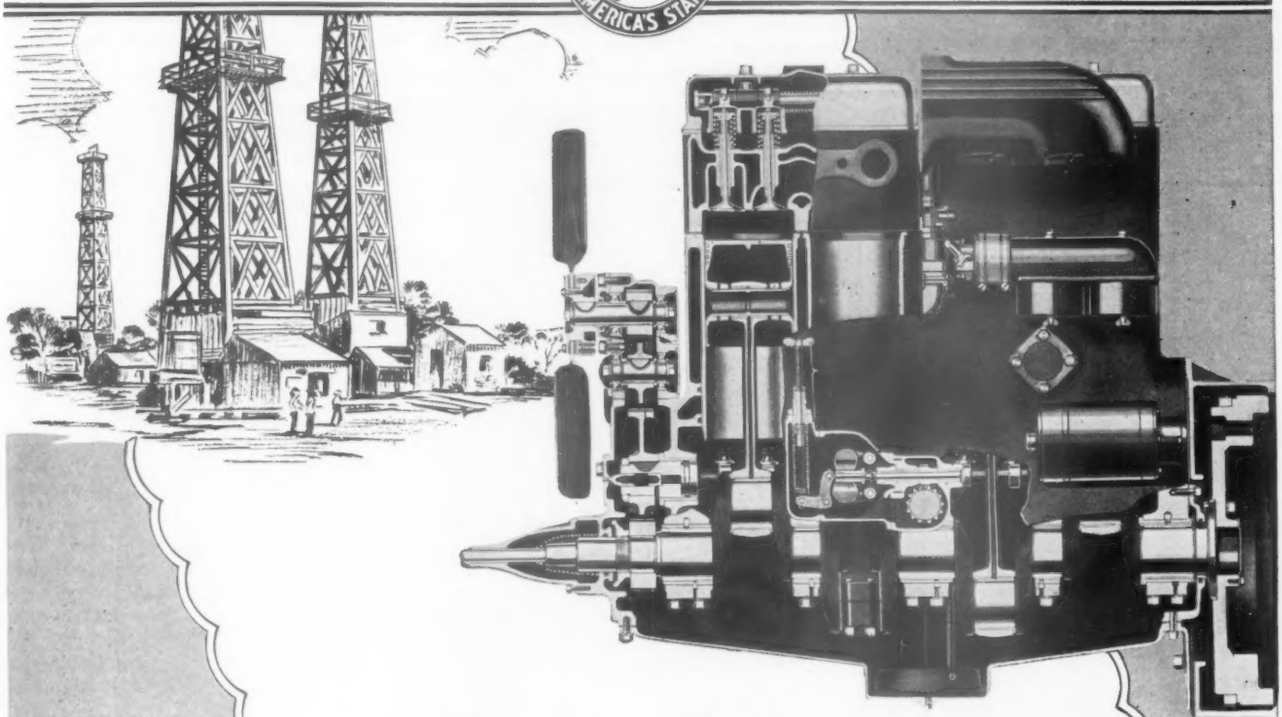

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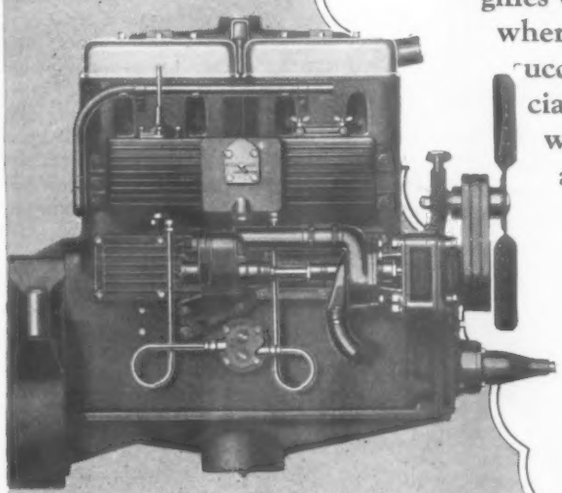

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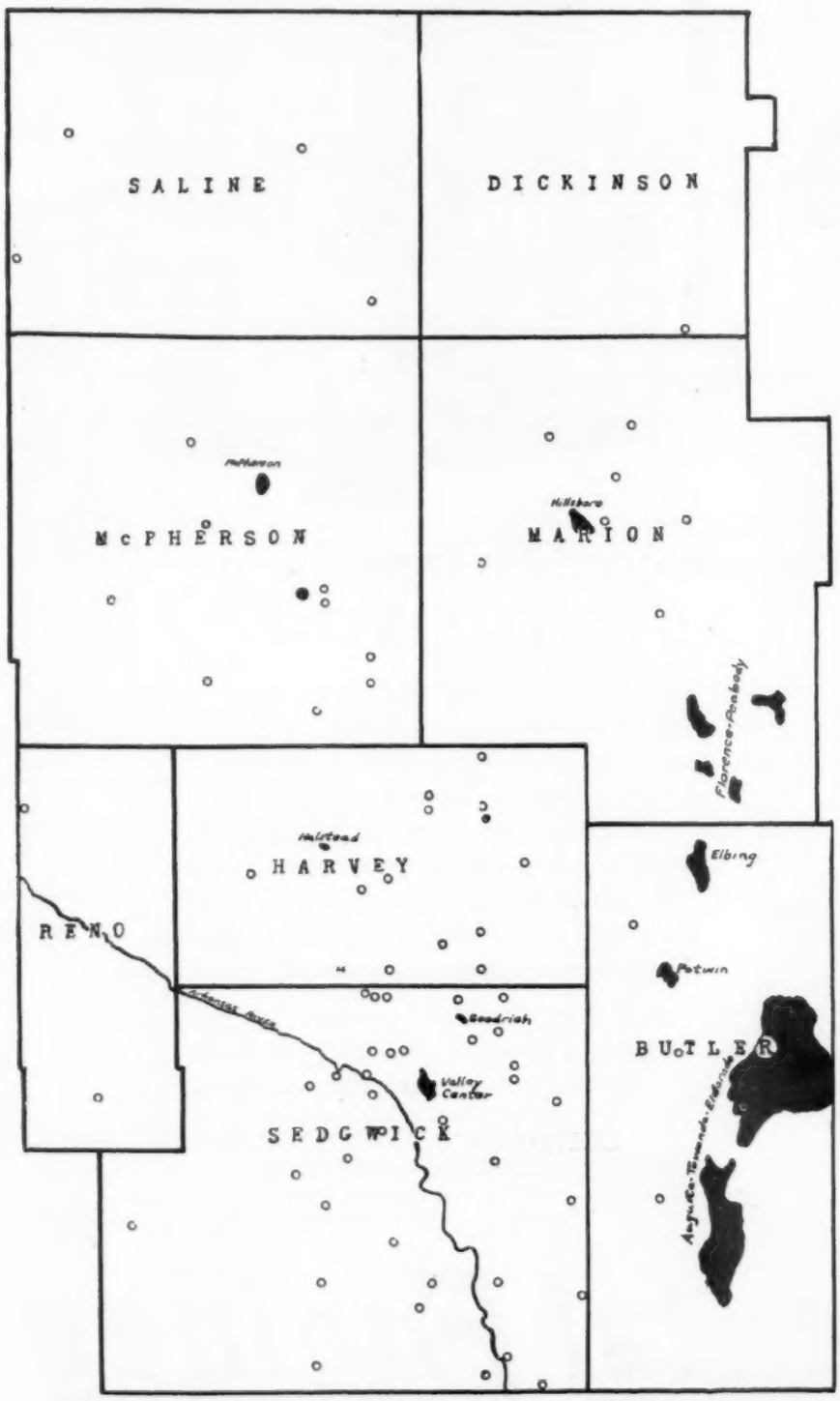
further widening by The Texas Company's Dindy 1, SEc NE SW Section 24-7-6, which had a hole full of water from the Wilcox sand found at 4249 feet, with the base at 4252 feet. It drilled deeper and found a show of oil at 4284-88 feet.

Maud pool was given another thrill by a big Hunton lime well last week, but like others it soon fell off in output. Laurel Oil & Gas Company's Billington 3, SW NE NW Section 18-8-5, flowed 210 barrels the first hour from 4127-51 feet. It did only 1520 barrels the first 24 hours, however, due to a rapid drop in recovery.

Sinclair Oil & Gas Company's Thompson 1, Section 18-9-7, appears to have opened a small pool east of Seminole City. The well has increased its production to 1020 barrels and is also making around 10 barrels of water daily.

The same company's Davis 1, Section 7-6-8, wildcat producer between Allen and Wewoka fields, continues to drill deeper. It made 1145 barrels from the Viola lime, according to the last available gauge. It has a depth of 4132 feet. Other tests are preparing to start operations in the district.

In southeastern Earlsboro, Amerada Petroleum Corporation's Cross 1, NEc NW Section 24-9-5, has 1800 feet of water in the hole from the Wilcox sand at 4246-63 feet.



Map showing fields of Central Kansas and present wildcat operations

Kansas Campaign Should Uncover Something

Tusa.—If oil is to be found generally throughout Central Kansas the present large wildcat drilling campaign should discover several new producing areas. A short time ago only a few locations were active, but since the latter part of 1928 rigs have been moved in with great rapidity, until there are now more than 70 actual wildcat tests underway, with many others in proven territory.

Since early in 1928 the chances of a large wildcat campaign have been apparent. Most of the major companies and many individual operators were taking blocks of acreage and checkerboarding the district at that time. Much preliminary work was done with the core drill, and evidently their findings were favorable, as more than 100 blocks have been assembled, some of which are large. Leasing reached such proportions as never before seen in Kansas and in few other areas of the Mid-Continent.

Discovery of the Valley Center field in northern Sedgwick County, followed shortly by the Goodrich pool strike, finding of the Viola lime pay at Hillsboro in Marion County, oil production in McPherson County, and big gas production in Harvey County, brought on the rush of activity.

Centering in northern Sedgwick County, drilling soon spread into southern Harvey County, southern Sedgwick County, and northwestern Butler County. Encouraging showings of oil in a number of wildcats in these districts further extended operations into virgin territory. This was particularly true to the north, where the campaign spread across Harvey County into McPherson County and thence into southern Saline County. One of the favored trends for production has been northeast from the Valley Center field across eastern Harvey County into Marion County. With discovery of commercial oil production in the Viola lime at Hillsboro the tendency to favor this direction was increased. Activity in this direction is spreading northward into southern Dickinson County.

It is now the general opinion of geologists that a number of trends running in a northeast by southwest directions across central Kansas will be found. It is probable that oil pools will be located at intervals along these trends. Although, not impossible that another Augusta-Towanda-El Dorado string of fields will be found, few are so optimistic over the possible outcome of the drilling tests. The area, like Butler and Greenwood Counties, will probably be erratic, but as a whole production in these two counties has been profitable.

Although recent developments at Valley Center, the leading new field, have been anything from near the earlier high anticipations, it still ranks as a highly profitable pool and but little damper has

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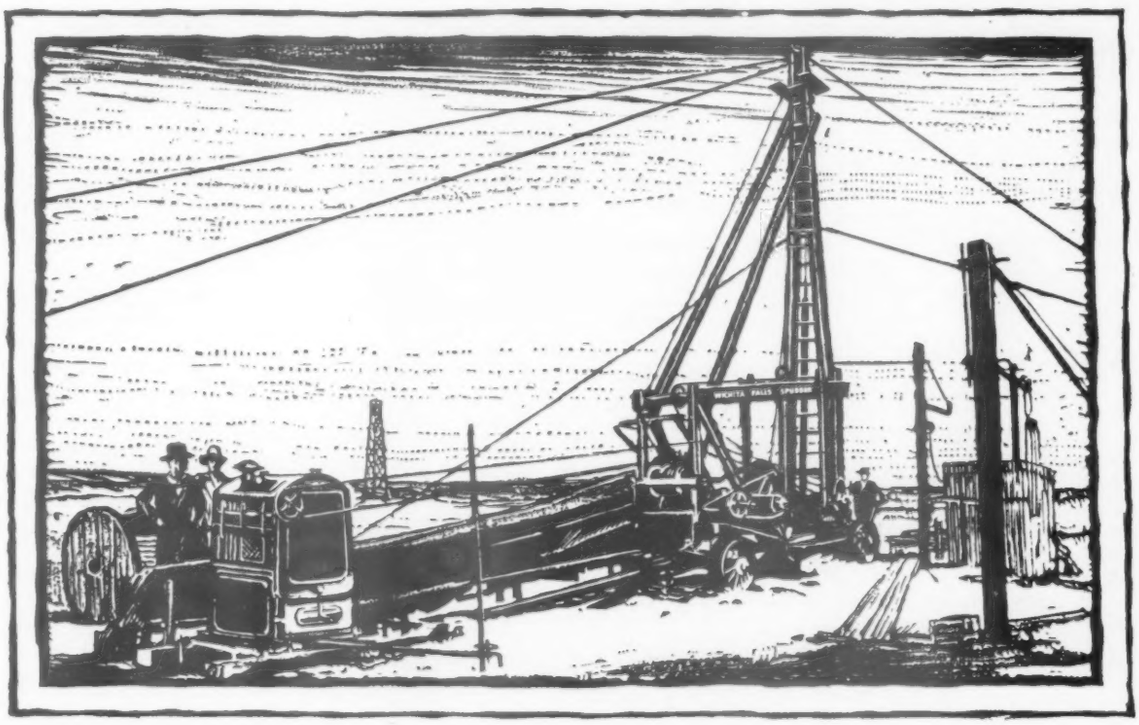
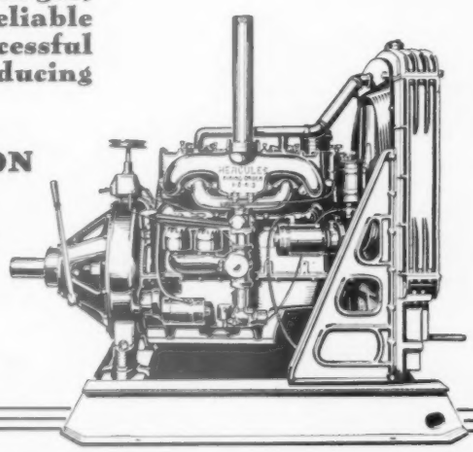


"SPUDDING IN" during icy weather—the crew working continuously in two twelve-hour shifts—a Wichita Falls Spudder powered by Hercules, drilled a 10-inch hole 848 feet deep in 5 days' time.

Florey & Leamon, owners of this equipment operating at Muskogee, Okla., have found that the Model G Hercules Power Unit is highly satisfactory on all their jobs. Operating on natural gas, it is economical, efficient and thoroughly reliable under all conditions—one of the many successful applications of Hercules Power to oil producing equipment.



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been placed on the expectations of the wildcat operators. Water has been one of the most serious troubles at Valley Center, which is but customary with pools in the section of Kansas as shown by a study of its history since the famous Augusta-Towanda-El Dorado string of pools.

Harvey County

Harvey County in the center of this big campaign has only some gas production at Halstead. Previously it had had very little exploration work. Many favorable structures are said to have been shown by the work of the core drills, and its location between four oil producing counties, namely, Sedgwick, Marion, Butler, and McPherson, makes it a favored spot. Only a big well in Harvey County, especially in the northern part, is needed to further intensify the development.

It is doubtful if a material increase in activity will be noted before the completion of additional tests, as the present crop of tests seem sufficient to uncover something somewhere in the district if it it there.

Location of a future intensified campaign depends on the site of any new fields. But regardless of the finding of new producing areas, the four counties occupying the northern half of this central part of Kansas are certain to see an increase in drilling. Development in McPherson County and western and northern Marion County is in an early stage. Saline County and Dickinson County are just starting actual development.

Sedgwick County has nearly half of the active operations with 35. Harvey County, its north neighbor, is second with 13 tests, followed by Marion, seven, McPherson nine, Saline 4, Butler three, Reno two and Dickinson one.

Some of the larger acreage holders are as follows: Shell Petroleum Corporation, Mid Kansas Oil & Gas Company, Gypsy Oil Company, Bu-Vi-Bar Petroleum Company, Tidal Oil, Marland Production, Sinclair Oil & Gas, Carter Oil Company, Empire Gas & Fuel Company, Phillips Petroleum Company, Amerada Petroleum Company, Wilcox Oil & Gas Company, Independent Oil & Gas and Barnsdall Oil Company.

E. W. Marland's New Company Organized

Tulsa.—E. W. Marland Company, Inc., is the new company of E. W. Marland, former president of Marland Oil Company. Marland recently returned from New York City, where he has been arranging organization and financing of the new company.

The new company has a capital stock of 500,000 shares no par value. Ponca City is headquarters. Several men formerly with Marland in the Marland Oil Company are connected with him in his new venture. They are Charles C. Brown, in charge of production; Alex McCoy, geologist and land man; Ivan G. Harmon, engineer; H. L. McCracken and others.

Valley Center Tests Shutting Down--Water Showing

WICHITA.—Possibility of oil production in Valley Center Townsite, Sedgwick County, Kansas, was given a jolt last week by finding water in Miller et al's Ramsey 1, NWc SW Section 31-25-1e. A large number of tests in the townsite have been shut down, awaiting the completion of this well, which is between the town and production. The Simpson sand was found at 3434 feet, with sulphur water encountered at 3441 feet. Last report had it drilling at 3457 feet. This new failure is one-half mile north of Jones-Kirk's Brown 1, dry hole in the NWc Section 6-26-1e.

This week was a very active one for Valley Center, the output of which is around 12,000 barrels per day.

The east outpost well in Section 6-26-1e, and the farthest northeast producer in the field, is Prairie Oil & Gas and Phillips Petroleum Company's Piper 1, SWc NE Section 6-26-1e. This well swabbed 280 barrels the first 12 hours from the Simpson sand found at 3386 feet and penetrated four feet.

Well Makes Water

The north offset to the Rolls extension well on the east side of the southern part of the field came in and is making considerable water. It is the Stearns & Streeter's Woodman 1, SW NW NW Section 7-26-1e, which is doing 55 barrels per hour on the swab and cutting 2½ per cent.

Several wells were completed in the triangle town lot district of the southwest quarter of Section 6. Mary Jane Oil Company's Fitch 2, SW NE SE SW Section 6-26-1e, did 643 barrels on the swab in 11½ hours from the Simpson sand at 3387-92 feet. It is the east offset to Fitch 1, original well in this particular spot. Allison & Fitzwilliams' Kelly 1, CSL SW NW NW Section 6-26-1e, filled up 300 feet with oil in 30 minutes. This oil came from the Simpson at 3375-77 feet. Derby Petroleum Company's Gorman 1, NW SE NW SW Section 6-26-1e, with Simpson sand at 3365-69 feet, swabbed 165 barrels in five hours.

Phillips Petroleum Company's Difford 2, NEc Section 1-26-1w, north part of the field, swabbed 235 barrels of oil in 16 hours with the sand at 3322-93 feet. Aladdin Oil Corporation et al's Smyser 2, SE SW SE Section 36-25-1w, at 3348 feet has 1000 feet of oil in the hole.

Status of Operations

The county continues to be quite active with 129 operations, 83 of which are drilling wells, three are shut down locations, three are rigs, four have rigs building, two are rigging up, material is being moved in for two others, one is standardizing, and seven are staked locations.

H. H. Patton et al's wildcat in the NEc Section 22-25-1e found a water sand at 3397-3412 feet and probably will be abandoned.

Derby & Skow Brothers in the SWc NW Section 15-9-4e, Clay County, has a 15-barrel showing in the chat from 1882-1900 feet. A number of good showings in the chat is causing additional interest to be turned toward this county.

Courtney Davis' discovery well of the Hillsboro district in Marion County, which was deepened after finding the lower pay horizon, has reached the Wilcox sand at 2882-95 feet and after finding one and one-half bailers of water per hour, has been plugged back to 2820 feet in the Simpson, where it swabbed 100 barrels. It has been shot with 20 quarts.

Line Near Completion

Tulsa.—Prairie Pipe Line Company has practically completed its line to Oklahoma City field. With only one producer completed and another month probably before there will be any others, there is no oil available. When Prairie Oil & Gas Company recently purchased the T. B. Slick properties, it acquired some acreage in Oklahoma City field on which tests are being drilled.

Okla. City Oil Shipped

Tulsa.—After discontinuing shipments for a while, Humble Oil & Refining Company again is shipping crude from the Indian Territory Illuminating Oil-Foster Petroleum Companies' discovery well of Oklahoma City field. Thirty cars left last week, and as this is being written another train load is expected to leave at once.

New Pipe Line

Tulsa.—Prairie Pipe Line Company will construct a new gathering system in the Delaware extension area in Nowata County, Oklahoma. Most of the gathering system in the district will be taken up and replaced with new lines of larger capacity.

A pump station will be built on Lightning Creek, three-quarters of a mile northwest of Alluwe.

Buys Gathering Lines

Tulsa.—Prairie Pipe Line Company is taking over Sinclair Crude Oil Purchasing Company's gathering system in the Worley pool, near Pampa, in Gray County, Texas. Sinclair has been moving the crude to Kings Mills, then out by tank cars. But since Prairie has a line at this point shipment by tank cars will be discontinued.

North and West Texas Field Notes

H. H. KING, *Staff Representative, Fort Worth, Texas*

Three Wells Extend Winkler Field Quarter Mile

SAN ANGELO, Texas.—The productive area on the north end of the Hendrick field was extended more than a quarter of a mile to the north during the past week by the completion of a trio of tests on offset locations. Skelly Oil Company's Fred Leck 1, located in the southwest corner of Section 21, was rated at 1750 barrels of oil daily on official proration gauge, but the flow of water accompanying the oil is greater in volume. This well logged pay at 2785 feet, after topping the big lime horizon at 2444 feet.

Southern Crude Oil Purchasing Company and Westbrook's Hendrick 2, a south offset to the above producer, flowed 100 barrels fluid, 12 per cent. water daily from upper pay at 2675 feet, and is deepening, while the same interests Hendrick 1 "C x T 88," which is a west offset to Skelly Oil Company's new producer, has shut down at 2703 feet with a flow of 300 barrels daily, 50 per cent. water.

Although only about 75 wells were gauged, the estimated potential daily output of Winkler County at close of March was placed at 2,279,243 barrels from 566 wells. This figure is slightly more than 100,000 barrels under the potential production given out the middle of March. In accordance with proration orders, Winkler County's output was cut 25,000 barrels April 1.

With daily crude production hovering near the 2300 barrel level along with a flow of about 22 million cubic feet of gas, Texon Oil & Land Company's University 1-B, Big Lake field, produced 200,000 barrels of 56 degree gravity oil up to and including Monday's output. This well holds the record for depth, having drilled into pay at 8500-8523 feet late in November, 1928, and the daily oil and gas production is gradually reaching higher levels, despite the application of about 175 pounds of back pressure, which was deemed necessary to maintain a balanced ratio of oil and gas.

A shallow gas pool for southwestern Mitchell County became more definitely established last week when the Simms Oil Company's I. L. Ellwood 2, located near the center of NE of SE Section 29, Block 18, S. P. Ry survey, gauged 4,200,000 cubic feet of dry gas, with 190 pounds rock pressure, from top of sand at 597 feet. This gas pay was first uncovered early last February when Simms Oil Company's Ellwood 1 developed a heavy flow at 600-20 feet, but cased off in order to go through with original plans to make a try for oil production in the Chalk field horizon. The latter test is drilling at 1520 feet after logging a trace of big lime at 1405 feet and again at 1445 feet. A ready market is available for all gas that can be produced in this area, as the Southwest Utilities Corporation, which has distributing lines in Big Spring, Forsan and other nearby oil field towns, is unable to supply its commercial demand. The various companies and operators that hold protection leases within Simms Oil Company's discovery block will have an opportunity to develop gas properties even though oil is not found.

Wildcats Increasing

Wildcat activity throughout the West Texas district is on the increase, with field work almost at a standstill in the areas that have been the principal sources of new production during the past year. Major companies that have heretofore frowned on the idea of trying for new producing areas are beginning to show a change of heart towards independent operators with protection acreage to sell off as a means of financing tests. No appreciable volume of new production is in store for the district within the next three months, while the Hendrick and Yates fields are the only two areas in the district that have potential production in sufficient quantities to be a factor in the market situation. The Yates field is literally sewed up by reason of the flush portion of the producing area being controlled by companies fostering proration moves, while the Hendrick field is practically drilled up, excepting the south end, which is controlled by a few companies.

The first wildcat efforts in the vicinity of the McCamey field, Upton County, in many months, is being started by the Sun Oil Company on a short term lease, involving 640 acres in Section 3, R. T. Company survey. Machine is being moved from Irion County, where two failures were recently completed by the company, to drill R. E. Long 1, which will be located near the northwest corner of Section 3. Tidal Oil Company recently acquired five separate drilling blocks through the purchase of approximately 27,000 acres from the McGraw Oil Company of Tulsa, for a cash consideration of $130,000. J. J. McGraw and George L. Miller accumulated these leases on a joint basis along with other wildcat acreage, and the sale was made in connection with the settlement of their respective estates. Most of the leases are of 10-year duration, and no drilling obligations are attached, although Tidal Oil Company will probably drill them separately after completion of a test now nearing the critical depth in Crockett County, and a new one staked for immediate attention on University lands in Pecos County. The acreage purchased by Tidal Oil Company from the Oklahoma estates extend in a general trend across Glasscock, Dawson, Borden and Garza Counties, with some checkerboard tracts, including one in Andrews County.

Wichita Falls, Texas.—T. G. Shaw and associates' wildcat test on the J. Kissinger land, John Conner Survey, opened a new oil pool in southeastern Young County early this week with production rated at about 80 barrels daily from Strawn sand horizon at 2527 feet. This test developed 2000 feet of high gravity oil in the hole shortly after penetrating the sand seven feet and will be deepened.

In the vicinity of the town of South Bend, Fultz and others semi-wildcat test on the J. J. Scott land, Wm. Johnson Survey, is credited with having flowed natural at the rate of 200 barrels daily from sandy lime pay at 3135 feet. The hole bridged about 500 feet off bottom and the owners are taking steps to condition the hole.

West Texas Production Cut 45,000 Barrels

FORT WORTH, Texas.—Production of the three separate oil producing areas in the West Texas district operated under the proration rules of the Texas Railroad Commission was cut 45,000 barrels daily beginning April 1 in the interest of conservation of the State's natural resources as well as to comply with the quota fixed by the general conservation committee of the American Petroleum Institute. In addition to accepting a reduction of 7500 barrels daily in allowable production, the operators in the prorated section of the Howard-Glasscock County field voluntarily adopted a Sunday shutdown plan beginning with the last Sunday in March. Excepting one concern, which has agreed to fall in line, the cessation of operations on all producing and drilling wells in the latter field was unanimous in the prorated area, and movement is gaining headway to enlist the owners of small shallow pumpers in the Chalk-Clay field in the shutdown plan, although the latter class of wells are not affected by proration orders.

The Howard-Glasscock County deep pay operators recommended after a special meeting in Dallas March 19 that the Texas Railroad Commission issue an order effective April 1 to reduce production from a maximum of 45,000 to 37,500 barrels daily. However, this reduction will not have any material reduction of actual production, which has been averaging less than the allowable quota, but the Sunday shutdown plan will automatically cut down production, since all wells are on the pump, and many are making such a volume of water that most of Monday's pumping efforts will be directed against removing the column of water accumulated over the 24 hour period of idleness.

Quick action was given by the commission in ordering the output of the Winkler County area cut from 175,000 to 150,000 barrels daily after holding a formal hearing at Austin March 29. A majority of the Winkler County operators had recommended on March 26 that such steps be taken by the commission, and no opposition was registered at the formal hearing. Testimony was offered at this hearing by a few representatives of producing companies fostering the reduced output regarding the water situation in the Hendrick field proper, and the benefits pointing towards conservation to be derived by clamping the lid tighter on the field, which has been allowed to produce a small fraction of its estimated potential daily output since May 5, 1928.

Yates field operators escaped taking an actual reduction in current allowable production, but contributed 12,500 barrels towards the general curtailment program now spreading into Oklahoma and California by passing up the opportunity to increase production from 87,500 to 100,000 barrels daily with the completion of available pipe line facilities. Such transportation facilities will be more than ample, with the cut taking place in Winkler County. The daily production allowance of the Yates field was authorized to be increased by the Railroad Commission last January from 72,500 to 100,000 barrels, beginning February 1, but limited transportation facilities caused the increase to be held temporarily to 15,000 barrels. Mid-Kansas Oil & Gas Company solicited the full 27,500 barrel increase to make maximum deliveries on contract made earlier in year with Humble Oil & Refining Company, and other operators threw their support to the plan in order to obtain a larger production quota, with the understanding that Mid-Kansas Oil & Gas Company would market the entire amount through the gathering and stub trunk lines of the Illinois Pipe Line Company, an affiliated company.

Texas Panhandle Gets Big Oil Producer

Amarillo.—The largest oil producer scored in the Texas Panhandle district in two years was developed last week when Operators Oil Company of Tulsa deepened a recent completion on the W. Jackson 80-acre tract in Bowers-Jackson pool, Gray County, resulting in the flow increasing from 3200 barrels daily to 6300 barrels during the first 24 hours and 9300 barrels on the second day's gauge. This well has been on production since March 14, and its unusual performance materially aided Gray County in taking the lead over Hutchinson County for the first time on daily average production. Oil from this well tested 42 degrees gravity at a temperature of 57 degrees Fahrenheit, and commands $1.23 per barrel under the penalized scale being applied to Panhandle oil.

Operators Oil Company's W. Jackson 3, located 330 feet from north line and 990 feet from west line of the N½ of NE¼ Section 88, block B-2, H&GN survey, furnished the big production after being deepened from granite wash at 2840-45 feet to 2865 feet. This location was originally made in April, 1928, but owing to low crude prices and a few disappointing completions in this particular section of the field, owners held off drilling until January. The first two completions on this lease made 100 barrels per hour initial each, being located in the northwest and southwest corners.

Gray County Yield Up

Gray County averaged 26,440 barrels daily during the past week, representing a gain of 2625 barrels, and a lead of 1115 barrels over Hutchinson County. A number of large completions have been contributed by the high gravity oil area in Gray County in recent weeks, including Marland Production Company's semi-wildcat on the Finley-Brown farm, Section 32, block B-2. The latter well blew in March 20 making 1060 barrels of 42.5 degrees oil and about 40 million cubic feet of gas from granite wash sand at 2843-45 feet, and the flow increased slightly by agitating, but when deepened to 2846 feet a small show of water developed, This well is credited with having averaged above 1300 barrels daily during the first week on production.

A noticeable increase in new field work is getting underway in the Gray County section, with a large area proven for oil and gas production. Crude purchasing agencies are waging an active campaign for new connections in the high gravity oil producing pools. Crude solicitors are seeking connections from operators as new locations become known.

The first crude production of any consequence added to the Shamrock field, Wheeler County, in more than a year was accomplished last week when Gibson Oil Corporation and associates' W. E. Bentley 6 made 130 barrels initial from 2347-67 feet.

Clay Creek Completion

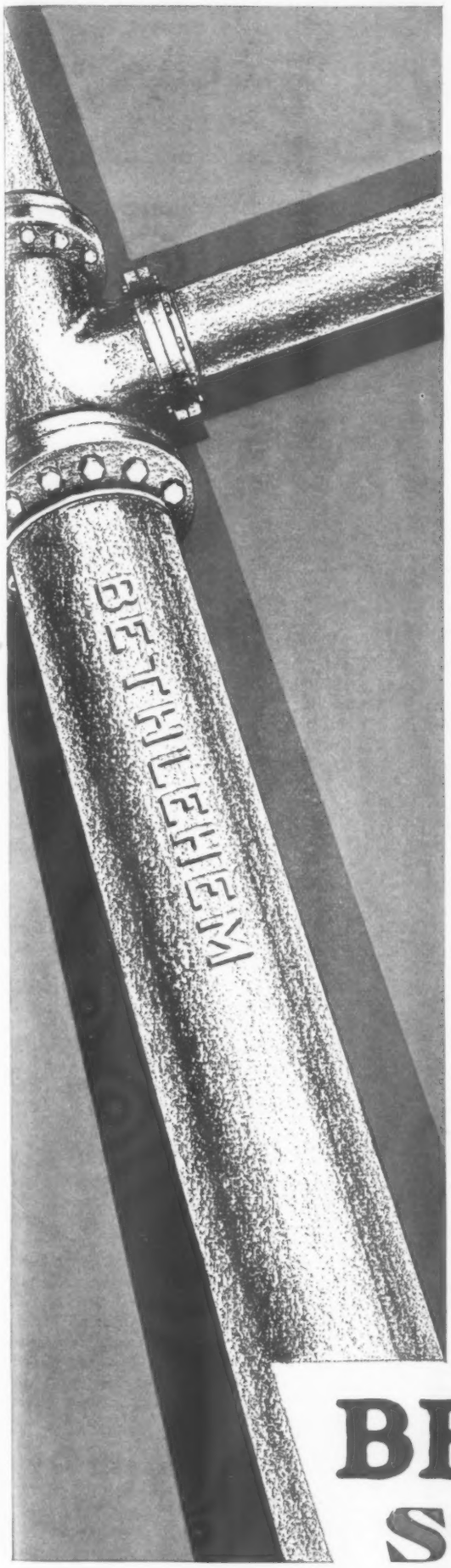
Brenham, Texas. — Sun Oil Company's H. Witt 2, located on the north end of Clay Creek field, Washington County, was completed March 27 flowing 40 barrels of 25.5 degree gravity oil from 935-1261 feet.

Sun Oil Company's W. F. Schlottman 1, located northwest of production, missed the regular pay, and is drilling ahead at 1600 feet, and W. Schirmer 2, located south of production is also a failure in the regular pay, but is going deeper, with a total depth of 1580 feet.

Production from this pool, which is owned by Sun Oil Company, has been pinched to less that 3000 barrels, owing to difficulty in obtaining tankers at the company's Gulf Coast tanker terminals, and the 55,000 barrel steel tank in the field is about filled.

Lost Lake Dome

Houston.—Pure Oil Company has completed Mayes 1 at Lost Lake dome, Chambers County, as a gas well at 2071 feet. The well has 880 pounds rock pressure, and is rated as a 40 million foot gasser. Gas from the well will be used by the Pure Oil Company in drilling other tests. Several new locations have been tentatively made. This dome was discovered and outlined by seismograph, and although no commercial production has yet been developed there, some good showings of oil have been encountered, and various tests have drilled into cap rock.



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Gulf Coast Field Developments

JACK LOGAN, *Staff Representative, Houston, Texas*

Three Wells Completed On Hackberry Dome

Houston.—The old Hackberry dome, Cameron Parish, most active area at present in South Louisiana, furnished three completions during the past week, and various other tests are due to be completed within the next week or so.

Rex Petroleum Corporation's Noble 1, located in SE SW Section 28-12s-10w, came in for 600 barrels initial production, pipe line oil testing 23 degrees gravity, flowing from sand at 3240-75 feet.

Sun Oil Company's Vincent 1 came in for 100 barrels from 3234 feet. Federal Petroleum Company's Kaough 3, located in the NW SW Section 28-12s-10w, came in at 3175 feet flowing by heads, making 22 gravity oil at the rate of 60 barrels daily.

Rycade Oil Corporation and Humble Oil & Refining Company's joint test, Gulf Land 1, on the southwest flank of the dome, which was showing for a well last week, promising to open up a new section of the field for production, has proved somewhat of a disappointment. It is 3740 feet deep, being in an entirely new sand. On Tuesday tubing was being run and it was planned to swab the well after running in the tubing.

Average daily production of the old Hackberry field during the week ending March 30 was 2850 barrels. East Hackberry dome, located three or four miles east of old Hackberry, during the same period had an average daily production of 3200 barrels.

Humble Well Producing From Broken Sand

Houston.—Cullen & West have set screen in Morris 3 in the southeast part of the Humble field and brought it in as a flowing well, making 46.6 gravity oil. Early reports showed the well making 4500 barrels per day, and on Tuesday of this week, when the well was over a day old, it was reported making 2100 barrels daily on a one-half-inch choke. Production is from a thick stratum of broken sand. Total depth of the hole is 4872 feet, and it is reported that 807 feet of six and five-eighths inch screen is set below the casing.

This well is a southwest offset to Cullen & West's (South Texas Petroleum Company) Morris 1, which came in January 4, 1929, as the discovery well of a new deep sand, making 2500 barrels of 44 gravity oil daily through a one-half-inch choke, the production coming chiefly from around 5225-5300 feet, although more screen than that was set. On April 2, approximately three months after completion, that well, Morris 1, was flowing 950 barrels pipe line oil per day.

The new well, Morris 3, came in originally March 15, 1929, blowing in before screen could be set; and began flowing several hundred barrels daily.

13 Completions Make 13 Producers at Sugar Land

Houston. — The popular superstition about the number 13 did not gain any substantiation through the completion of the thirteenth test in the Sugarland field, Fort Bend County. Humble Oil & Refining Company's Brazos Farm 2 was the thirteenth completed test at Sugarland, and it was the thirteenth producer, having been preceded by 11 oil wells and one gas well. Brazos Farm 2 came in for 1400 barrels at 3611 feet. It is more or less within already proven territory, being 120 feet northwest of Brazos Farm 1, which is the one gas well at Sugarland.

During the week ending March 30 the average daily production at Sugarland was 10,450 barrels; that amount being from the 11 wells producing during the period. With the new well contributing to the output, that is, with now a total of 12 oil wells, the daily production is around 12,000 barrels.

If the past success of the Humble Oil & Refining Company at Sugarland continues, the production of the field will be further boosted considerably within the next week, as there are now four tests in the field that are down to the pay sand with casing set, waiting for cement to set. Those four include Brazos Farm 3, Brazos Farm 4, Sugarland Industries 6, and Bankers Mortgage A-1.

Bring In Two More Oil Wells at Refugio

Houston.—Two new oil wells have been completed in the Refugio field during the past week, making a total of nine oil producers in that area, which had produced only gas until the discovery of oil there last summer.

The later of the two new wells is Saxet Oil Company's Claud Heard 6, located 600 feet southeast of Benedum Trees Oil Company's Clint Heard 1, the discovery oil well of the field. Claud Heard 6 came in on Monday of this week making 1000 barrels of 23 gravity pipe line oil daily from sand at 3681-88 feet, flowing through 4½-inch casing.

Several days prior to completion of the Saxet Oil Company's well, the Houston Oil Company finished Wilson Heard 5 at Refugio, bringing it in for 700 barrels. The production is from sand at 3679-86 feet. This well is 300 feet north and 300 feet west of the Refugio discovery oil well. It was completed March 26.

Second Well on Southwest Flank of Barbers Hill

Houston.—In the southwest part of Barbers Hill field, Yount-Lee Oil Company has completed the second producer from the deep sand on that flank of the field, Chambers County Agricultural Association 2 having come in for 1100 barrels initial production from sand at 5170-5330 feet. The production is 31 gravity pipe line oil.

This is the first test that has been drilled to the deep pay on the southwest side of the field following completion of the discovery well of that sand, Yount-Lee Oil Company's Chambers County Agricultural Association 1, which came in January 29, 1929, at 5315 feet, and soon afterward began flowing steadily at the rate of 4700 barrels daily, making oil testing approximately 30 degrees gravity. Thus the well is now over two months old. In the meantime it has produced around 250,000 barrels, and is at present making around 3450 barrels daily. With this record of production, it has the distinction of having been the best well in the Gulf Coast this year.

The new well, No. 2, is 150 feet due west of No. 1.

To the north of the wells on the Chambers County Agricultural Association tract, Yount-Lee Oil Company has abandoned Richardson 4 at 2279 feet.

In the northeast part of the field, where several wells are producing from a deep sand discovered last fall, the Mills Bennett Production Company's Kirby 2 came in on Sunday of this week, March 31, flowing 350 barrels daily by heads. It will be put on the pump.

Average daily production at Barbers Hill during the week ending March 30, was 6500 barrels, according to American Petroleum Institute estimates.

Abandon Three

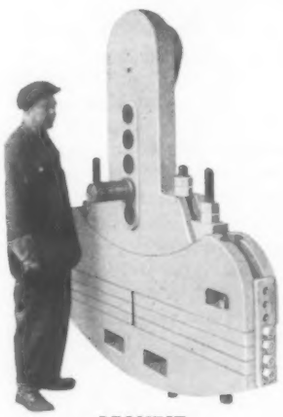
Houston. — On the Chocahoula dome near Thibodaux, La Fourche Parish, Louisiana, three tests were abandoned during the past week. Gulf Refining Company of Louisiana abandoned Stark 9 at 1400 feet in cap rock. Union Sulphur Company abandoned No. 1 and No. 2 Dibert, Stark & Brown; both in salt. No. 1 was abandoned at 1525 feet after penetrating around 75 feet of salt and No. 2 was abandoned at 1775 feet. The two tests of the Union Sulphur Company were primarily sulphur tests.

Sun Shipments

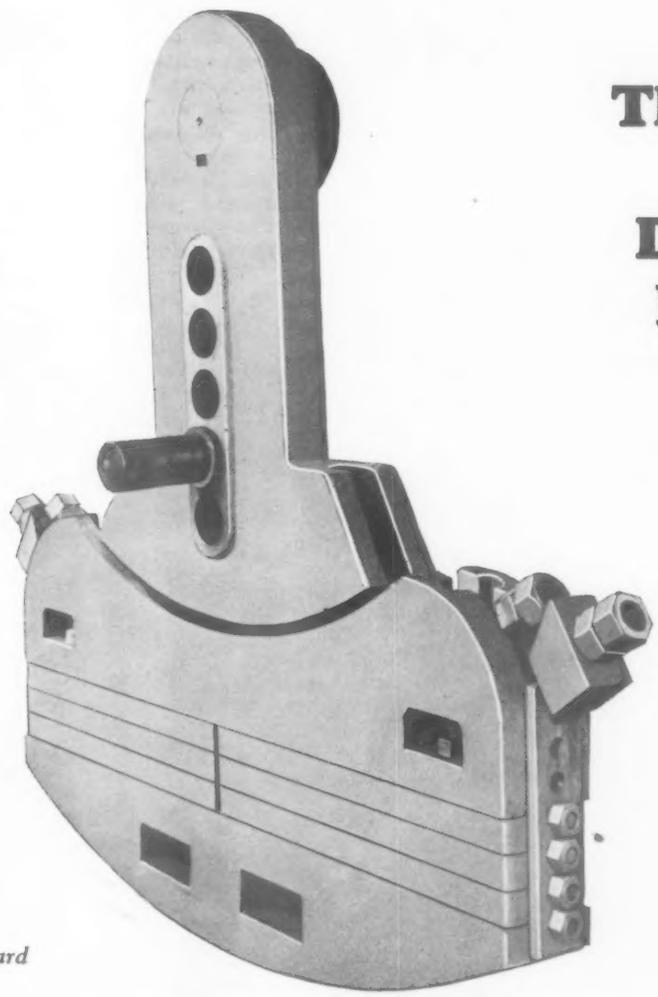
Beaumont, Texas. — Coastwise water shipments of the Sun Oil Company during March from the company's crude oil terminal at Sun on the Neches River amounted to 635,687 barrels.

OCS

Crank Type Equalizer



REQUEST
BULLETIN 88



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LOS ANGELES

Santa Fe Operators Agree on Output of 125,000 Barrels

(Continued from page 44)

barrels daily the coming week, even if several smaller operators are slow to act.

Kettleman Hills

Plans are underway for the carrying out of the curtailment program for the entire state, as well as to retard development at Kettleman Hills. It is known that the operators at Kettleman Hills are of one accord with reference to holding back active drilling operations, provided the movement is 100 per cent. and also provided certain legal phases can be worked out to the satisfaction of all. Most of the land in the Kettleman Hills area is government permit land, requiring a certain amount of development work to a designated date. Some land holders have already secured their last extension date, and they must have governmental relief if they are not to run the risk of losing their permits.

It is not felt that much trouble will be encountered in handling the curtailment program in the older fields of the state, but many details must be worked out at the fields where town lot drilling has been or is in progress, due to the large number of small operators involved and also due to number of land owners who want their land developed as fast as possible.

A. P. I. Directors Approve World Curtailment Plan

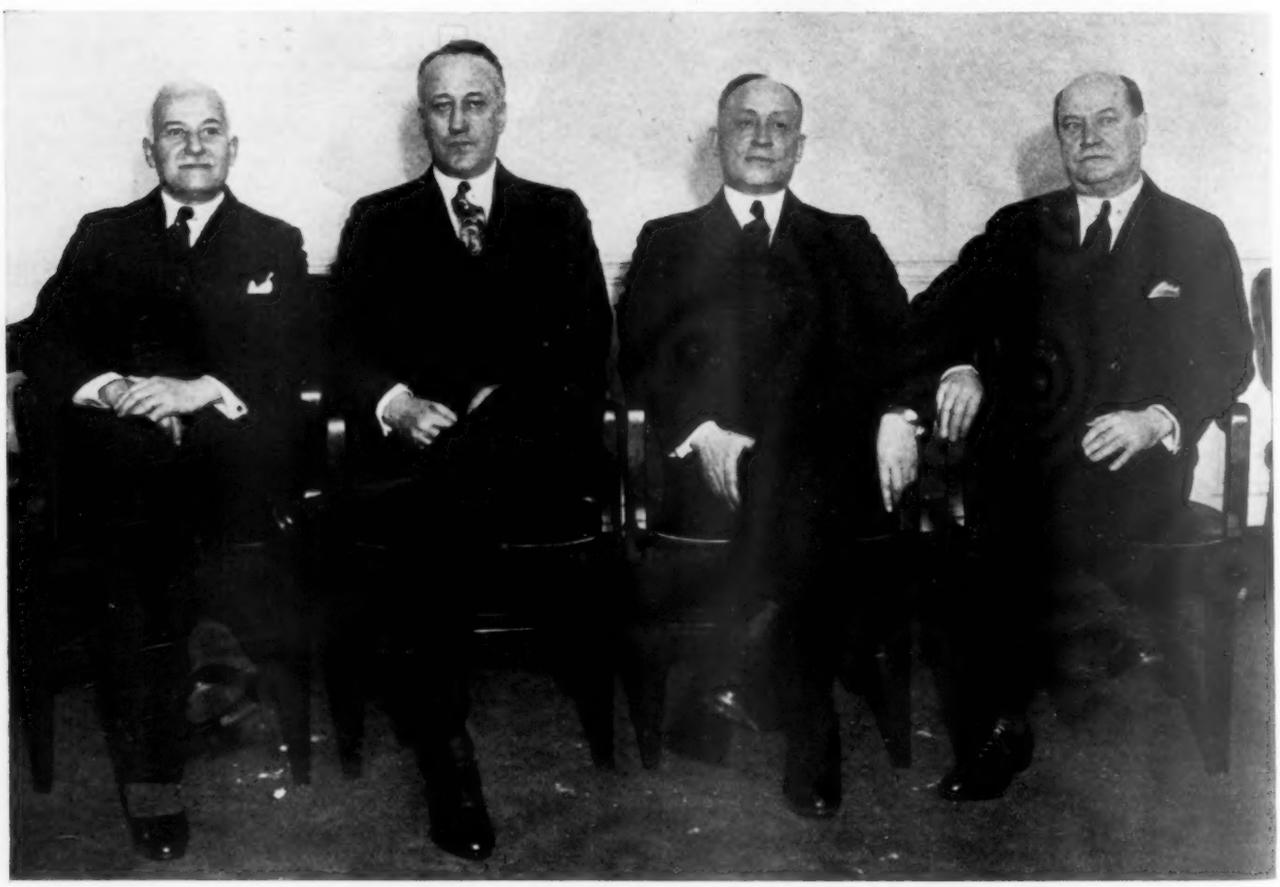
NEW YORK, N. Y.—Plans for curtailing production of crude petroleum in the United States received the unanimous approval of directors of the American Petroleum Institute on March 27. This will mean a cut of 170,000 barrels a day in United States production and also reductions in the output of Mexico and South America.

Sir Henry Deterding, managing director of the Royal Dutch Petroleum Company, attended the directors' meeting held in New York and took active part in approving world-wide petroleum curtailment plans. The plan approved included a recommendation for the formation of a permanent organization within the American Petroleum Institute for the study of overproduction of petroleum throughout the world. Such an organization would work with the Department of Commerce and the Federal Oil Conservation Board, at Washington.

The directors also adopted a resolution saying that the Institute did not oppose a levy of state gasoline taxes from which the revenue is used solely for highway construction and maintenance, but did oppose the "fixing of a rate-per-gallon tax beyond reasonable bounds, or where the rate the consumer must pay is out of equitable proportion to the price of gasoline." Those present at the meeting represented companies controlling more than 72 per cent. of the domestic production of oil and 88 per cent. of petroleum production abroad.

Washington, D. C.—Legality of the plan announced by the American Petroleum Institute for the control of petroleum production is to be passed upon by Attorney General Mitchell, who has been asked by Secretary of the Interior Wilbur to render an opinion as to the legality of the plan under the Sherman and Clayton Acts. It has also been announced that the secretary has inquired of the attorney general as to any possible powers of the Federal Oil Conservation Board in the control of petroleum production.

That the plans of the American Petroleum Institute will not go through without possible difficulty is indicated by the statement from the Federal Trade Commission that that body is also carefully observing the actions of the oil industry as part of its duty to



Left to right—Sir Henri Deterding, managing director of the Royal Dutch Shell Group; Axtell J. Byles, president of the Tidewater Associated Oil Company; E. B. Reeser, president of Barnsdall Oil Corporation, and Harry F. Sinclair, president of the Sinclair Consolidated Oil Company. These figured prominently in the New York conference which approved plans for reducing oil production in the Western Hemisphere

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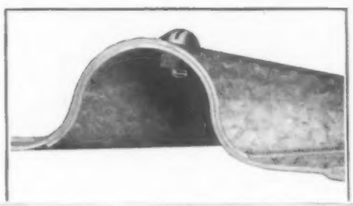

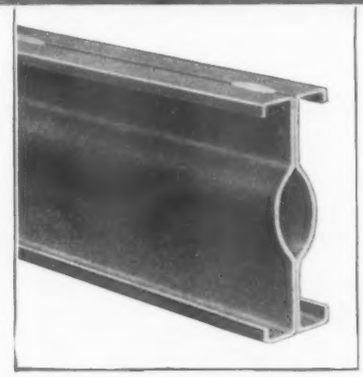

HERE is pictured a typical case of "decentralization in industry". It is a modern gasoline plant in Texas, property of the Signal Oil Company, completely surrounded by oil wells from which comes its raw material. In Arkansas, cotton gins are in the cotton field. In Colorado, refining processes are at the mines. In Illinois, corn stalk paper is made in the shadow of the corn stalks. Taking the factory to the raw material is a growing actuality.

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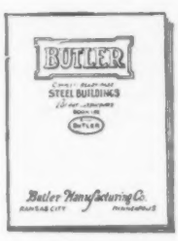

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detect and prevent any violation of the anti-trust laws or any efforts toward monopoly.

It is not indicated that there is any disposition on the part of the government to interfere with legitimate attempts of the petroleum industry to cope with the overproduction situation, but that problem must be met without violation of any of federal statutes. Toward that end, any plan of the Institute will have to pass the scrutiny of the Interior Department, the Federal Trade Commission and the Department of Justice.

It is anticipated that representatives of the American Petroleum Institute will come to Washington next week to meet with the Federal Oil Conservation Board and explain to its members the action taken at the New York meeting and the effect upon overproduction which is anticipated if it can be carried through.

Deep Gas Well Drilled On Garland Dome

Casper, Wyoming.—Utah Southern Oil Company has completed a 15,000,000 foot gas well on Garland Dome in Northern Wyoming, on Section 26-56-97. This well is 3763 feet deep and shows a rock pressure of 1500 pounds. The well was started as a test of the lower horizons for oil. It penetrated several gas sands and developed small showings of oil. The formation tested from 3,312 feet to 3,763 feet. The well is shut in at present, pending decision to utilize the gas or drill deeper for oil.

250-Mile Line Planned In California

San Francisco. — Plans have been completed for laying a natural gas line to SanFrancisco, and in all probability the line will be completed this year. The main transmission line will be laid from Button willow, in Kern County, to the bay area, 250 miles, and will cost between $13,000,000 and $16,000,000.

The natural gas, rich in heating value, will be sold to industrial consumers in large quantities at reasonable rates. This line will be built of 20-inch pipe and will have a capacity of 125,000,000 cubic feet a day. The transmission system will fork near the town of Huron and provide a branch line 40 miles in length to supply the cities and towns of Fresno County.

Abandon Wildcat

Houston. — Republic Production Company has abandoned Lobit 1 in Galveston County, one mile northwest of Dickinson, the bottom of the hole being at 4875 feet in shale and lime. This test was upon a structure indicated through geophysical prospecting. The test had a slight show of gas around 1050 feet.

Production Figures Reveal Earnest Curtailment Efforts

(Continued from page 48)

runs. The Petroleum Pipe Line Company of Texas, which has a rack and line serving the field, recently sold 80,000 barrels to the Swiftsure Petroleum Company's Texas City refinery at $1.37 per barrel f.o.b. plant.

North Texas refiners are sharing in the improved market for gasoline that has followed in the wake of more favorable motoring weather, and early this week quotations on U. S. Motor were firm with a range of 7 to 7¼ cents per gallon, while fuel oil prices are holding at 70 to 75 cents per barrel for the better grades due to the scarcity of this product. Domestic jobbers have been inclined to increase their stocks of gasoline at present quotations in expectation of general crude curtailment programs going into effect in the disturbing areas contributing to higher prices, especially since this movement is taking place at a time when a seasonal gain in gasoline consumption is due, thus affording an added stimulant to the market.

California registered a gain of 8000 barrels daily last week, which was credited entirely to Seal Beach. All other fields in that state, including Santa Fe Springs, maintained production at a more or less constant level. While the recent reduction of 24 cents per barrel in the Elwood field has not materially affected development, it is anticipated that it has had some effect upon other localities. Undoubtedly, operators in the flush areas of California realize now that immediate steps must be taken to prevent continued overproduction there. It will be a difficult problem to bring production down to limits prescribed by the American Petroleum Institute in California but any success in that direction is bound to effect an improvement in the otherwise topheavy market structure.

The proposed cut of 142,000 barrels in California production has worked wonders to stabilize the crude market in the state, and while there is some opposition to the general proration plan, it is believed that it will be carried out roughly as outlined. California is now producing about 775,000 barrels of crude daily, with consumption running about 125,000 barrels lower.

Long Beach and Santa Fe Springs are expected to carry the brunt of the reduction, chiefly because they are the main disturbing factors and have utterly failed to fall in line with past plans of curtailment. It has been impossible in the past to whip operators in these two fields in line, but it now appears that ways and means will be devised to cause a general cut-back. Pressure is being brought to bear from all sides and old barriers probably will be smashed in this latest reduction plan.

Every field in the state will be affected by the sweeping reduction. The two critical areas—Long Beach and Santa Fe Springs—will be reduced 28 per cent. Elwood will suffer a 30 per cent. slash, with other fields coming in for cuts ranging from 10 per cent. to 15 per cent.

A more orderly development is expected in the Kettleman Hills field, and it is possible that drilling will be reduced to a minimum—if not stopped entirely.

Santa Fe Springs is showing a sharp decline, but if proration or a curtailment of drilling operations is not placed in effect at once, the O'Connell zone is expected to shove production upward.

The last holdout among the major marketing companies has increased the tank wagon price of gasoline to the approximate "standard" price and the California price war seems a thing of the past. There is no set service station price but gasoline is being retailed everywhere at an average of eight cents above the price of a few weeks ago. Most stations are selling gasoline at 18½ cents.

The fuel oil market is expected to react favorably to the proposed proration plan. This commodity has been sold as low as 50 cents, f.o.b. the Los Angeles harbor, but a better price is expected soon.

Cimarron County Test

Tulsa.—Magnolia Petroleum and Ramsey Petroleum Company's State 1, C SE NE Section 22-5n-5e, cm, west of Boise City, in Cimarron County, Oklahoma Panhandle, and in what is called No Man's Land, has a total depth of 1542 feet. The 12½-inch pipe was being lowered when it froze 300 feet off bottom. It was lubricated loose and again froze in the quicksand at 55 feet off bottom. It is now cemented.

Pottawatomie County Test is Running High

Tulsa.—Mid-Continent Petroleum Corporation's James 1, SEc Section 22-5n-3e, an important wildcat test, is running very high on the structure. It is standardizing at 3275 feet. Top of the Hunton was found at 3022 feet, the Sylvan shale at 3030 feet, the Viola lime at 3100 feet and the Simpson sand at 3187 feet.

Tidal Oil Company's Henderson 1, Section 31-5n-2e, another wildcat test in the Byars district of southern Pottawatomie County, is drilling at 1736 feet. It found a show of oil from 1600-1700 feet.

Vineland Field Well Strikes Water

Pueblo, Colo.—The first well to reach the producing sand in the new Vineland field in Pueblo County was a disappointment, having encountered artesian water at 1140 feet. The discovery well, three miles northwest, got its oil at 1190 feet in the horizon which is thought to be the Dakota. Several other sands below the Dakota and above the red beds will be tested by the present well which is known as Vey 1, and which is being drilled by the Christy-Frantz Oil Corporation. It will be a Pennsylvanian test.

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THE NATURAL GAS INDUSTRY

Plans Shaping Up For Big Gas Convention

Pittsburgh, Pa.—Further announcements of interest in connection with the natural gas convention to be held in Kansas City May 6 to 9, inclusive, have been made recently.

The Natural Gas Department of the American Gas Association has made arrangements whereby all delegates to this meeting will be given the privilege of the certificate plan of reduced railroad fare to Kansas City at one and a half fare for the round trip. It has also been decided to charge a registration fee of one dollar to all employees of gas companies and manufacturer companies. A splendid program is being arranged.

Following are the committees which have been organized for this event:

Program Committee:

A. W. Leonard, Chairman, Devonian Oil Company, Tulsa, Oklahoma; N. C. McGowen, Palmer Corporation, Shreveport, Louisiana; F. L. Chase, Lone Star Gas Company, Dallas, Texas; T. H. Kerr, Ohio Fuel Gas Company, Columbus, Ohio; Major T. J. Strickler, Kansas City Gas Company, Kansas City, Missouri; H. C. Cooper, People's Natural Gas Company, Pittsburgh, Pa.; T. R. Weymouth, Oklahoma Natural Gas Company, Tulsa, Oklahoma; Eugene Metz, Metric Metal Works, Kansas City, Missouri; W. H. McKenzie, Wyandotte County Gas Company, Kansas City, Kansas.

Entertainment Committee:

Major T. J. Strickler, Chairman, Kansas City Gas Co., Kansas City, Missouri; Paul C. Ford, Kansas City Gas Company, Kansas City, Missouri; T. H. Barton, El Dorado, Arkansas; T. R. Weymouth, Oklahoma Natural Gas Company, Tulsa, Oklahoma; L. B. Denning, Lone Star Gas Company, Dallas, Texas; H. L. Montgomery, Empire Natural Gas Company, Bartlesville, Oklahoma.

Exhibits Committee:

F. M. Rosenkrans, Chairman, The Gas Service Company, Kansas City, Mo.; H. Leigh Whitelaw, American Gas Products Corporation, New York; W. E. Derwent, George D. Roper Corporation, Rockford, Illinois; Fred H. Thomas, The C. & G. Cooper Company, Mount Vernon, Ohio; C. R. Zeckey, Pittsburgh Equitable Meter Co., Kansas City, Mo.; O. T. Dawson, National Supply Company, Tulsa, Oklahoma; E. F. Schmidt, Lone Star Gas Company, Dallas, Texas; N. A. Newton, Oklahoma Natural Gas Company, Tulsa, Oklahoma; C. W. Berghorn, Director of Exhibits, A. G. A., New York.

Transportation Committee:

Arthur Booth, Chairman, Pittsburgh Supply Co., 435 Water St., Pittsburgh, Penn., who will handle transportation of delegates from Pennsylvania, West Virginia and Ohio.

William G. Dickey, Pacific Meter Works, 495 Eleventh St., San Francisco, Cal., who will handle transportation of delegates from Pacific Coast as far East as Colorado.

William C. Grant, Secretary, Southwest Division, 412 Santa Fe Building, Dallas, Texas, who will handle transportation of delegates from entire Southwestern territory.

George Wehrle, Public Service Company of Colorado, Denver, Colorado, who will handle transportation of delegates from Colorado, Wyoming, etc.

Curtailment of Drilling Affects San Francisco

San Francisco.—The proposal to limit drilling in the Kettleman Hills field has a direct effect on the future supply of natural gas for this city, and if carried out may slightly alter the course of the 22-inch gas line being built from the San Joaquin Valley to serve the Bay cities. It is not believed that the government objects to drilling wells enough to supply actual needs, but is directly striking at a future waste of gas through a large production of oil. A very few wells, plus the gas developed in the Buttonwillow district, probably would care for the needs of the Bay cities until further development of the Kettleman Hills would not constitute a menace. If the field is gradually developed, as urged by government officials, cities partially depending upon the area for a gas supply may profit, rather than suffer in the long run. The high well pressure at Kettleman Hills is important to the transportation of the gas and is expected to reduce the cost of delivering a supply to the Bay cities.

Test Encounters Gas

Artesia, N. M.—Chief in interest of the wells drilling in southeastern New Mexico this week is the Leonard & Levers' Haggerty 1 which found a million feet of gas at 2610 feet and which is drilling below 2700 feet. This well is six miles northwest of the Flynn, Welch & Yates' Jackson 1, known as Eddy County's best producer.

In Lea County, Ohio Oil Company is rigged up and ready to start drilling its well on the Hobbs High structure. It will be known as Price 1.

Alabama and Mississippi Gas Areas Active

Amory, Mississippi, April 1. — Six tests are under way in Monroe County, Mississippi, and one other in the neighboring Lamar County, Alabama.

These operations are the sequel to successful completion more than a year ago of Amory Petroleum Company's Carter No. 1, as a commercial gas well. This well is serving gas to Amory.

Five of the local operations are being drilled by P. J. McAlpin for that number of concerns.

Amory Petroleum Company in Hall 1 in Section 8-13s-17w, is drilling at 2635 feet and will continue to 3000 feet or lower, it is reported. This test is one mile east of the discovery well, which was completed for five million cubic feet at 2412 feet.

Six hundred feet north of the Carter 1 Amory Gas Company has a fishing job in Carter 2 in Section 7-13-17, at 1274 feet. Four joints of pipe are in the hole. Incidentally this is the first rotary test in the field.

Amory Development Company's Bourland 1 in Section 2-13-19, 10 miles from the discovery well, and almost in the outskirts of Amory, is trying to shut off salt water with packer to test a show of gas at 2230 feet.

Seven miles north of the Carter No. 1, Park Bowser is skidding a derrick for another hole after being forced to junk Cowart 1, in Section 2-12-9.

Arkansas Natural Gas Corporation, which acquired Rye 1 in Section 22-15-17 from Natural Gas and Fuel Corporation in a merger several months ago, is underreaming to lower six-inch casing at 3010 feet.

In Lamar County, Alabama, Knapp and Riggs have spudded Guin 1 in Section 25-12s-14w. This test is 25 miles east of the discovery well.

Explosions Cause Test to Be Drilled

Lincoln, Ark.—Lincoln Oil Leaseholding Company has spudded a test near this town, in Washington County. The test hopes to find the gas encountered near Fatteyville.

Lincoln Oil Leaseholding Company was formed last fall with Captain B. F. Alley of Cave Springs, Ark., as its head. Thirty thousand acres of land in this vicinity are under lease.

Nearly a year ago an explosion occurred on Skylight Mountain during a thunder storm, which it is said was caused by escaping gas. Since then two additional explosions have occurred in the hills nearby. This led to a geological survey of the region.

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T. B. Slick Planning New Producing Operations

Tulsa.—T. B. Slick is understood to be planning three separate oil companies, one each for Oklahoma, Kansas and Texas. The Oklahoma company is already in operation in charge of E. E. Kirkpatrick of Tulsa, and Charles Urshel of Oklahoma City.

Mr. Slick has purchased the holdings of Pryor & Lockhart Company in the Valley Center pool of Sedgwick County, Kansas, and an interest in 40,000 acres of wildcat leases in Kansas. It is said that approximately a million dollars was involved in this deal. He has also purchased the Aladdin Oil Company's producing properties at Valley Center and some acreage.

This is the formation of his Kansas company, which will be headed by Ralph Pryor and Floyd Lockhart, with headquarters in Wichita. It is understood that the company for Texas probably will have headquarters at Fort Worth.

These developments definitely show that Mr. Slick plans to re-enter the oil business on a big scale. It will be remembered that he recently sold his producing properties to the Prairie Oil & Gas Company at a consideration said to have been around $37,000,000.

Gulf Oil Corporation Nets 36 Million

Pittsburgh, Pa.—The annual report of the Gulf Oil Corporation for the year ended December 31, 1928, shows net profits from all operations amounting to $36,-325,140.05. This result places the company's earned surplus account as of January 1, 1929, at $166,155,731.02, a gain of $29,647,353.65 over the previous year. In submitting the annual report of the Gulf Oil Corporation, President W. L. Mellon stated in part as follows:

"Both the volume of products sold and the cash realized therefrom were substantially larger than for the previous year, notwithstanding lower market prices of certain products, principally fuels. The inventory of crude and refined oils is conservatively valued at cost or market, whichever is lower. The gross production of crude oil from 5700 wells, principally in Kansas, Oklahoma, Texas, Ar-Kansas, Louisiana, Venezuela and Mexico, was 74,248,793 barrels, being a daily average of more than 202,800 barrels. The net portion accruing to the company exclusive of all royalties and working interests was 63,062,800 barrels, being a daily average of more than 172,300 barrels. During the year this company and its operating companies made additional investments in properties, plant and equipment of $49,600,000. The principal items comprise addition to leaseholds, enlargements of pipe lines and storage systems, including an additional 10,000 barrels daily capacity for the mail line from Oklahoma to Port Arthur, Texas, refinery; enlargement of refinery at Philadelphia; increase in tanker fleet and in bulk and retail distributing stations. The larger increase in the production of crude oils containing a high sulphur content obtained in West Texas and Venezuela, makes necessary substantial expenditures for changes and additions to plant looking to more economical processes of refining. This, together with the necessity for additional marketing facilities, causes the management to believe that it is prudent to continue the policy of retaining the surplus earnings for reinvestment."

Current assets are shown on the company's balance sheet as $131,556,717.53, while current liabilities total $16,572,-883.33, giving the company a net working capital of $114,983,834.20. Total assets as of December 31, 1928, aggregated $614,-140,730.98, of which $464,641,697.12 represented investment in property, plant and equipment.

Sulphur Dome

Houston. — Union Sulphur Company boosted production at Sulphur Dome, Calcasieu Parish, Louisiana, last week through completion of Fee 741 as a 1000-barrel well at 3120 feet. It is flowing pipe line oil that tests around 24.5 gravity.

The same company also abandoned one test during the week at Sulphur. Fee 740 was abandoned as a failure at 6260 feet. It is the deepest test yet drilled at Sulphur, although three others have gone below 6000 feet. The deepest producer there is Fee 730, which is 5705 feet deep.

Billy Creek Blowout

Casper.—Billy Creek discovery oil well, in central Johnson County, Wyoming, blew the tools out of the hole last Monday and flowed 500 barrels of oil in a short time before it bridged. The well will have to be cleaned out again. There is about 200 feet of sand and cavings in the hole which now prevent a 24-hour test.

Storm Stops Drilling

Great Falls.—A stop to all operations in northern Montana was caused last week by another heavy snowstorm. Not many wells had resumed drilling but those which had were in worse shape than they would have been had they remained shut down. Roads are again impassable with mud and snow and it will require another two weeks for operations to be again up to par.

Los Angeles.—General Petroleum Corporation of California has brought in Oschner 2 in Kettleman Hills field for 40 million cubic feet of wet gas. The well is located 6½ miles southeast of the Milham Exploration Company's discovery well and on the south dome of the three comprising the structure. Oschner 2 was swabbed in from 6850 feet and looks like it may make some light oil.

Allen Field Tests Near Completion

Tulsa.—A number of tests in Allen field are being completed or have reached an important depth.

Sunray Oil Company's South Nitchey 1, SW NW NE Section 19-5n-8e, has been completed for an initial production of 525 barrels from the Cromwell sand at 2550-2636 feet. This well is in the river bed and a much better producer than some of its offsets. Nitchey 2, NW NE of Section 19-5n-8e, is rigging up standard tools at 2505 feet. The top of the Wapanucka lime was encountered at 2460 feet. No. 3, same lease, is drilling at 2402 feet.

Sunray's Amos A-1, NE SE SW Section 7-5n-8e, a Wilcox sand test, has topped the Viola lime at 3970 feet and is setting eight-inch casing at 4050 feet, where it will standardize.

Mid-Continent Petroleum Corporation's Fleet 14, SWc NW SE Section 7-5n-8e, is standardizing at 4090 feet in Viola lime, found at 4063 feet. Its No. 15, Fleet, in the NWc SW SE Section 7-5n-8e, is drilling below 3625 feet.

Independent Oil & Gas Company's test in Section 20-5-7e, west of Allen field, has topped the Wapanucka lime at 2183 feet and is drilling at 2750 feet in shale. On the top of the Wapanucka this test was running nearly 800 feet higher than the tests on the west edge of Allen.

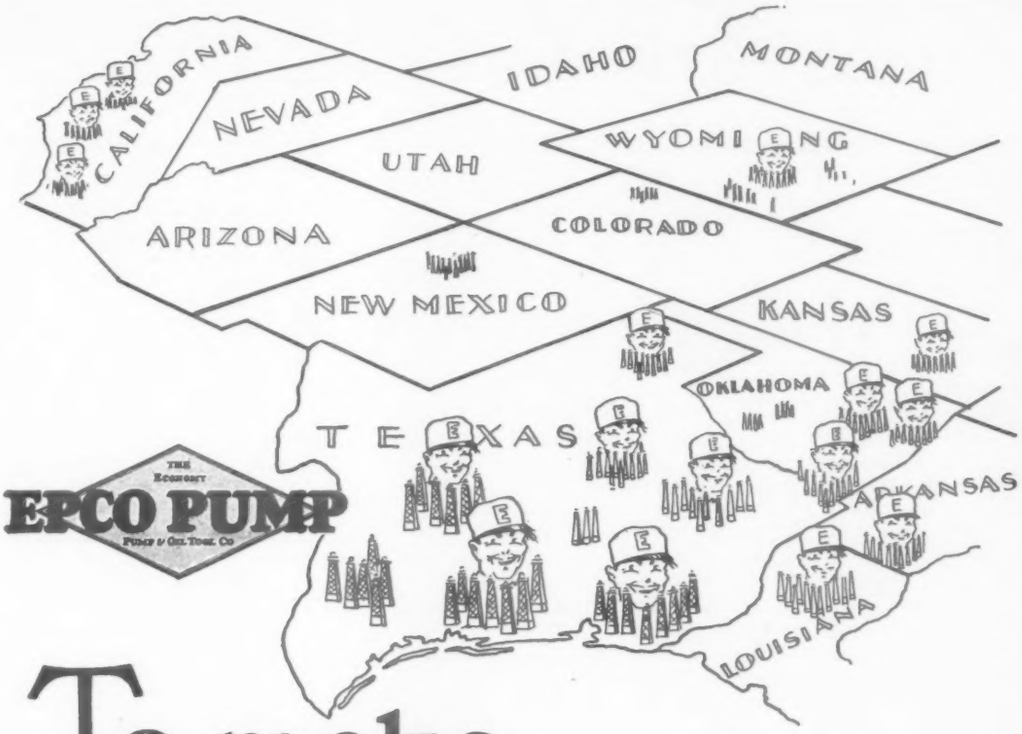
Sinclair Oil & Gas Company's Jefferson 1, Section 24-5n-7e, southwestern Allen, continues to spray oil and mud over territory within a one mile radius. The sand in this district is white, but spray from the well has turned it a brownish color. There seems to be little hope of getting the gasser under control. In the meantime, all drilling tests in the district are unable to fire boilers.

Three Governors Meet

Cheyenne, Wyo.—Governors Dern of Utah, W. H. Adams of Colorado, and Frank Emerson of Wyoming convened in Denver last week to consider the president's new policy regarding the leasing of government land for oil and gas prospecting permits. It was hoped that the governors of Idaho, South Dakota, and Montana might also be able to be present as their states will be as vitally affected by the new ruling as are the others.

Certificates Awarded

Tulsa.—The fifth annual oil and gas lecture course at Tulsa Night School has closed. The average nightly attendance was 100 and certificates were awarded to 25 men and women who had attended 20 or more of the 28 lectures given. The lectures were given by men recognized as specialists in some branch of the business. The sixth annual lecture course will open next December.



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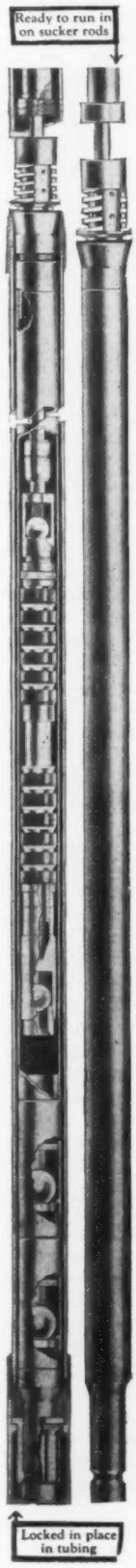


Louisiana--Arkansas Field Notes

Champagnolle's "Biggest Well" Makes Salt Water

SHREVEPORT.—Ohio Oil Company's W. N. Raulston 1, in Section 12-17-14, completed as the largest producer of Champagnolle field in Union County, Arkansas, and estimated at 10,000 barrels daily when allowed to flow wide open for the first hour, is making 50 per cent. of its yield as salt water through two half-inch chokes. The latest daily gauge showed that the well made 1784 barrels net oil through the two chokes. Salt water encroachment has been the bane of Champagnolle field.

Two new tests, one an offset, are being drilled by Ohio Oil Company in the immediate vicinity. The offset is B. H. Raulston 1, in Section 12-17-14. The other is a test on the Adams lease, over a half mile away in Section 7-17-13. The Arkansas Natural Gas Corporation is also drilling a test on the Adams lease in the same section.

Test Louann Well

In Mount Holly field, Ouachita County, Arkansas, five miles west of Louann production and 10 miles east of Stephens production, Flaucher and associates, who have the deepest test, aside from the two Wilson wells of McDonald Brothers in Section 25-15-18, are drilling ahead at 1860 feet a drill stem test at 1790 to 1792 feet in Bucks 1, in Section 7-15-17, 2½ miles northeast of the Wilson wells. This test was probably in the Nacatosh sand as it is found at 1900-2000 feet in the Louann field, a part of Smackover. Charles McDonald hit the Nacatosh at about 1800 feet in his Wilson 1, the only commercial well so far completed in the district. Meanwhile, the Wilson 1 of McDonald Brothers, now known as Wilson A-1, a quarter of a mile south of Charles McDonald's Wilson 1, now known as McDonald Brothers Wilson B-1, had drilling water bailed off bottom at 2857 feet, and two-inch tubing with packer has been set. Operators expect this well to pump 200 barrels daily on the beam. It has made a few heads recently.

Charles McDonald's well has fallen off from its peak of 305 barrels daily. Tools were run to bottom and it is believed there are eight feet of sand in the bottom. McDonald has indicated he may deepen from present depth of 2866 feet.

McDonald Brothers are rigging up for Wilson B-2, 300 feet north of B-1, in the same section. Root Refineries Company is rigging up for Wilson 1, about 500 feet east of McDonald Brothers' producer, while Atlantic Oil Producing Company and E. M. Jones' Allen 1, in the same section, but almost half a mile northeast, has spudded in and cemented 10-inch casing at 141 feet. The Atlantic Oil Producing Company is reported to have paid Jones $500 an acre for half interest in a 10-acre tract, half in cash and half out of the first production.

Magnolia Petroleum Company has set surface casing in M. & K. Wilson 1, in SE of SW of Section 25-15-18. George Kouri and associates have made location for Henson 1, in NW of NE of Section 24-15-18, and Cumberland Petroleum Company has made location for Burton 1, in SE of NE of Section 24-15-18.

North Louisiana

North Louisiana's interest during the week was centered in D. C. R. Oil Company's Hunter Estate 1, in Section 17-19-14, Caddo Parish, nine miles north of Shreveport and four miles southeast of production in the old Caddo field. Two feet of sand from 2412 to 2414 feet were given a drill stem test without favorable result. The well was deepened to 2422 feet, where about two feet of sand was penetrated, and after a drill stem test, 600 feet of 41 gravity oil rose in the hole. Operators have set a string of six-inch casing for a test. The sand is believed to be the Blossom.

Several 10-barrel and pumpers of less capacity have been drilled as near as two miles northwest, and one dry hole was drilled at about the same distance north. A three-barrel pumper was also completed several years ago a mile and a half south of the Hunter test.

Twenty-two new locations were announced in the Shreveport area during the week, 10 of which were in North Louisiana and four in South Arkansas. Three of the four Arkansas locations were for Ouachita County. Besides the locations in the new Mount Holly field, Timberlake and associates are rigging up for Wright 1, in NW SE of Section 25-14-18, six miles from the Wilson test. Wesson and associates have a derrick up for Booth 1, in Section 12-15-19, east of Stephens field production, and near where Louisiana Oil Refining Corporation is drilling Manley 1, down to 3000 feet, and located in Section 15-15-19.

The fourth Arkansas location was for Champagnolle, Union County, being Magnolia Petroleum Company's Kelly 1, in SE of SW of Section 9-17-14, where derrick is being built.

Monroe and Richland

Six of Louisiana's 10 locations are for the Monroe and Richland gas areas. There were four in East Texas, three in Panola County and one in Harrison County.

Initial production in the Shreveport district, embracing North Louisiana, South Arkansas and East Texas, was almost nothing during the last week, only one small well, a five-barrel pumper in the old shallow Bellevue field of Bossier Parish, Louisiana, being completed. This is R. L. Crook's Larkin 1, in Section 14-19-11, total depth of 381 feet.

Lake Bisteneau salt dome and semi-wildcat gas area in Bienville Parish, added another gasser during the week when W. P. Wallace completed State 1, in Section 16-16-10 at 2495 feet, making five million cubic feet of gas.

In La Salle Parish (Urania), H. L. Hunt encountered salt water and abandoned Urania 6, in Section 2-9-1e, at 1281 feet. The Ouachita Parish side of Monroe gas field added two small gassers.

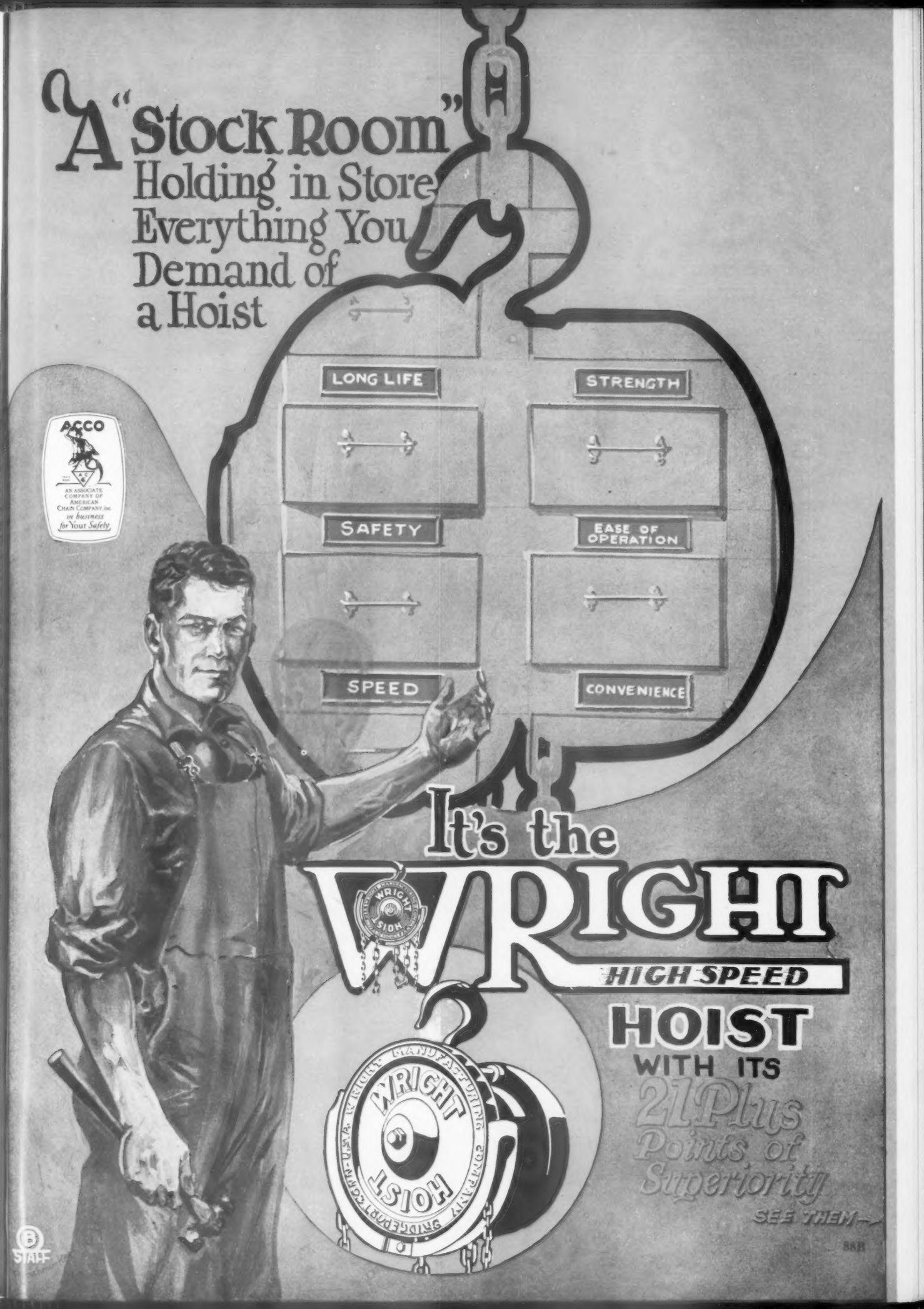
Cass County, East Texas, passed out of the drilling report with the final abandonment by Davis & Pigg of their Ed Lambert 1, in the Lambert survey. It tested dry and was abandoned at 1952 feet. The operation had been shut down for some time.

Arkansas was able to furnish only one completion during the week, a failure. Rovenger Oil Corporation hit salt water at 3441 feet in W. H. Perdue B-2, in Section 9-17-14.

Sabine Parish Wildcat

Just as R. L. Gay, Trustee's, Bowman-Hicks 2, in Section 14-7-14, Sabine Parish, Louisiana, 19 miles from nearest production, was filling its eleventh 500-barrel tank, Standard Oil Company of Louisiana last week joined the last connection of its four-inch line from Oxford, Louisiana, to the well and started moving the oil which has flowed at the rate of 50 barrels daily into tankage with clock-like regularity since December 1.

The Texas Company has started running oil from Charles McDonald's Wilson B-1, in Section 25-15-18, Ouachita County, Mount Holly district, Arkansas, having laid a four-inch line from Louann to the wildcat producer.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News From California Fields

BRAD MILLS, *Staff Representative, Los Angeles, California*

O'Connell Zone Wells at Santa Fe Springs Cause Apprehension

LOS ANGELES.—Failure to obtain a satisfactory water shut-off in any one of four wells in the Upper Clarke zone, the appearance of bottom water in an O'Connell sand producer on the west side and the unsatisfactory test of the only well to reach the Lower Clarke zone, gave the Santa Fe Springs field a questionable appearance last week and left no definite clue on which to base future action of the sands lying below the Buckbee zone.

While not regarded as favorably as the the O'Connell zone, the Upper Clarke sand has a much greater lateral extent and it was on this zone that many operators had based their hopes of production. Failure to obtain a water shut-off to lie with the cement, although it is possible the thin body of shale above the sand is not sufficient for the purpose. Heat is known to have affected the cement, and if this factor is responsible for the unsuccessful attempts to shut off the water, it will be necessary to devise a means of counteracting it. Cores taken from the cement indicated a very high temperature. It is believed that in more than one well the cement has partially set before reaching its destination, or that it had been changed enough to render it useless. These failures are regarded as very important and may indicate that the zone will not become a major factor in future production.

Difficulty in Cementing

Completion a week ago of Shell's Slusher B-1 as a 2000-barrel producer tended to confirm the theory that the O'Connell zone would prove productive in many areas where the Buckbee failed outright. The well came in flowing from the very top of the sand, however, and when the cement was drilled out and all of the sand opened, the cut jumped to 27 per cent., much as the Buckbee zone had done on the same lease. Action of this well considerably lowers the standing of the O'Connell zone in the west side of the field. As the well produced clean oil from the top of the sand, the water probably is coming from deep in the zone. If such proves to be the case, the O'Connell zone may not exceed the Buckbee sand in area.

Los Angeles.—Working at top-speed operators in the Santa Fe Springs field met here with Umpire F. C. van Deinse March 29 and practically agreed to reduce production, beginning April 1, to bring the field total to around 125,000 barrels daily.

Wells that have failed when tested for a water shut-off in the Upper Clarke are the California Eastern Oil Company's Santa Fe 2, George F. Getty's O'Connell 21, Richfield Oil Company's Elliott 2 and Associated Oil Company's Fulton 3. The last named was not officially tested, but when the cement was cored, it was found soft and mushy. Elliott 2 has been cemented seven times without satisfactory results.

Operators searching all over the field for new evidence that the O'Connell zone is about to shoot production upward again at a terrific rate, but the week's development failed to indicate such. Universal Consolidated Oil Company's Blanchard 7, completed a week ago with an initial production of about 8000 barrels, is flowing around 7000 barrels, with 350 feet of sand open. The oil is showing a cut of 8 per cent, giving further evidence that the O'Connell zone is not entirely free from water. The same company completed O'Connell 3 during the week with an initial production of 2000 barrels. It was the third O'Connell zone completion and included only the top of the sand. The oil showed a cut of 12 per cent. The well was completed at 6447 feet, or considerably shallower than Blanchard 7. These wells are located south of the center of the field, but are in an area which produced very satisfactorily in the Buckbee zone.

Wells Due in O'Connell Zone

Wells now coring in the O'Connell zone and which are to be completed in the formation are Associated Oil Company's Green 3, Union Oil Company's Howard 10, Texas Company's Baldwin 4, and Universal Consolidated Oil Company's O'Connell 5. Several other wells have found the top of the sand.

Five wells formerly producing in the Buckbee zone were killed during the week for deepening to the O'Connell sand, bearing out the prediction of a week ago that many wells would be killed. The large completion of a week ago in the O'Connell zone has changed the plan of several operators of edge leases.

Several wells found the Upper Clarke zone during the week, some of which were located outside the producing limits of both Buckbee and O'Connell zones. General Petroleum Corporation's Jalk 111 encountered the zone at 7042 feet and drilled through more than 60 feet of good oil sand. The Texas Company's Patterson 11 found the sand at 6970 feet and also penetrated 60 feet of oil sand. Both Jalk 111 and Patterson 11 are being reamed, preparatory to cementing casing over the Upper Clark.

The southern part of the field is soon due for a test in the lower O'Connel zone, with the Standard Oil Company of California reaming to cement a string of casing in Koontz 7. This well failed to produce in the Buckbee zone and its success in the O'Connell would prove a large block of acreage.

The Texas Company's Mutual 2, which was an absolute failure in the Buckbee zone, although virtually surrounded by good producers, will be tested in the O'Connell zone. A string of casing will be cemented at 6355 feet to test the upper part of the sand. Failure of this well to produce in the Buckbee remains a mystery. It was a 14,800-barrel well in the Meyer zone.

Intermediate Zone Discovered

Union Oil Company is preparing to test the O'Connell zone between 6380 feet and 6565 feet in Howard 10, considered a representative well in the formation. A large producer in this part of the field probably would result in the deepening of many other wells.

Discovery of an intermediate zone—about midway the Upper and Lower Clarke zones—in both the General Petroleum Corporation's No. 228 and Plymouth Oil Company's Fred Roberts 1 was a freakish development of the week. These wells are located in the extreme east part of the field. The discovery probably will

not affect the greater part of the field. Plymouth Oil Company may set a string of casing over the sand at 7500 feet to test about 65 feet of fair oil sand.

Failure of the Associated Oil Company to get a water shutoff in Clarke 2, discovery well in both the Upper and Lower Clarke zones lost the company the chance of effecting the deepest shutoff on record. The 4¾-inch casing was run to 7802 feet, with the hole bottomed at 7922 feet. Tests showed the temperature at the bottom of the hole to be about 210 degrees, Fahrenheit. This great heat supposedly affected the setting of the cement. The well is being swabbed, preparatory to re-cementing. The 122 feet of formation being tested includes about 50 per cent. of oil sand and an equal amount of shale. Clarke 2 is the only well to have found the Lower Clarke zone.

The first collision since the development of the deeper zones started eight months ago occurred during the past week, when The Texas Company's Wickham B-1 drilled into the Union Oil Company's Farwell 11 at 3900 feet. Farwell 11 lost circulation and did not regain it until Wickman B-1 was shut down. The Texas Company will survey its well.

Effects of Proration

The field has not felt the effects of the stringent proration move under way. It looks as if production will be reduced, but every operator is rushing his wells, unmindful of the proposed curtailment. Several new locations have been made since the reduction plan was outlined.

Drilling wells total 177, of which 122 are making hole above the Buckbee zone, 10 are either coring in or are ready to test in the same formation and 38 are drilling below the Buckbee. Twenty-two wells are now drilling in the O'Connell zone, but not more than 12 of these will be tested in the sand. Idle wells total 21, with several idle locations.

Six wells completed during the week had a total initial production of 13,000 barrels, or about 5000 barrels less than the field decline. Production from the deep zones settled to about 137,000 barrels from 120 wells.

The best completion of the week was Commodore Petroleum Company's Babonett 3, which came in with an initial production of 4100 barrels from 5817 feet. It was one of the best Buckbee zone completions of the month the oil showing a cut of less than one per cent.

George F. Getty completed Nordstrum 25 with an initial production of 3300 barrels, but the oil showed a cut of 12 per cent. This Buckbee zone completion was finished at 5877 feet.

Shell Oil Company's G. H. N. 17 was the freak well of the week, showing an initial production of four barrels of oil and 200 barrels of water. The well was completed in the Buckbee zone at 5810 feet, with a plug at 5308 feet.

Inglewood

Los Angeles.—James Pollard is drilling in gray sand at 4430 feet in Community 1, located in the city of Inglewood and about one mile northwest of production in the Potrero field. The well was recently tested at 4100 feet but produced only a small amount of oil along with water and considerable gas.

Lawndale Well Settles to 650 Barrels

Los Angeles.—Fear that Pacific Western Oil Company's Howland 2, recently completed as a 1200-barrel well in the Lawndale field, was sanding up has been dismissed, production having settled to 650 barrels. The well started flowing by heads and acted as if sand might have been causing the trouble, but the volume of the flow showed only a small decrease. Howland 2 is almost exactly the same type producer as Peck 1, the second completion, being located only a short distance away. The company has plugged back to 6000 feet in Howland 1, set 8⅝-inch casing at 5775 feet and will make a production test at about the same depth as in Howland 1.

The great cluster of wells along the narrow strip, which runs northwest and southeast and lies generally east of present production, seem to have been located off structure. Eight wells have passed 6000 feet without results. Superior Oil Company is setting a string of casing at 5630 feet, to test streaks of sand found beneath that depth and 6700 feet. Hancock Oil Company is drilling near the 6800-foot level but has not cut a sand worthy of a test. Standard Oil Company is still wrestling with Vance 1, which is bottomed at 6225 feet, but has been unable to make the well produce. A string of 6⅝-inch casing was cemented at 6135 feet. When the fluid was bailed down to 4500 feet, the well failed to respond. Union Oil Company has suspended operations on all drilling wells in the field, the first company to take such a step.

Proration Not to Retard Wildcat Drilling

Los Angeles.—Wildcatting in California probably will not feel the effects of conservation as much as the proven fields, according to leading operators who plan an orderly development of large unproven leases. It will be a comparatively easy matter to shut in new fields as they are found, it is claimed, the real danger lying in extensive development of older fields. Whether this argument is a consistent one is open for dispute, but a survey shows that pioneering for new fields will not cease in California. The odds against finding oil in the average California wildcat are listed at better than 100 to 1, leaving the argument that the real danger lies in the proven field a possible one.

Kettleman Hills Test Due For Early Completion

Coalinga, Calif.—Making good time below the final water shutoff in Oschner 2, General Petroleum Corporation probably will complete the next well in the Kettleman Hills field. The well is drilling in a flinty formation at 6825 feet, or about 300 feet above the level at which production was obtained in the discovery well.

Of the 20 wells started from the surface since the field was discovered, Standard Oil Company's No. 81 was the first to pass 5000 feet. Other wells drilling between 4000 feet and 5000 feet are George F. Getty's Armstrong 1, Marland Oil Company's Elliott 12-8 and Elliott 2-13, Milham Exploration Company's Elliott 2, Beal 1 and Kennedy 1 and Standard Oil Company's No. 41.

The Department of the Interior is frowning upon the development of the field at this time and will lend its influence toward halting unnecessary drilling. Just what constitutes "unnecessary" drilling remains the question.

Round Mountain Well

Bakersfield, Calif.—Shell Oil Company completed Freeman 3 as a 350-barrel well at only 1650 feet, giving the Round Mountain field a still greater shut-in production and reducing active drilling operations to three. This company holds under lease a large part of the patented lands in the field, while the Honolulu Consolidated Oil Company controls the bulk of the government permits. The latter company has suspended operations in the field.

Proration Vs. Tests

Los Angeles.—Despite plans for a sharp reduction of production in the Los Angeles Basin, deep tests in certain fields probably will be drilled as scheduled. It has been pointed out that regulations concerning gas wastage can not be made to apply to drilling wells, especially where no surplus gas or oil has been developed. Agitation for deeper development in at least one Los Angele Basin field continues and in all probability two or three deep wells will be drilled in the Huntington Beach field. Several proposed tests in other fields may not be made at this time, but it is believed that as production declines there will be a tendency toward further deep drilling. Drilling for deep sands in certain fields does not constitute a menace, provided the necessary legislation to prohibit the wastage of gas is enacted, according to sponsors of such regulations. If no surplus gas is produced, oil production probably will fall within the necessary limits.

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Say you saw it in The OIL WEEKLY

Crooked Holes--Causes and Effects

(*Continued from page 34*)

at the derrick floor. The position of each bottle was accurately determined in relation to the drill stem.

In the Ceptura field in Roumania a very similar method has been tried with some success.[37]

Martienssen's Method[38]

An instrument used by Dr. O. Martienssen in Germany consists of two pendulums pivoted at right angles to one another, recording apparatus for each pendulum, a gyroscopic compass, and electrical equipment employed in actuating the recording device, driving the gyroscope, and turning the metal housing in which all these contrivances are contained. Orientation is governed by the gyroscope according to the well known principle of Foucault. The inner housing is inclosed in a strong water-tight outer casing. The turning of the inner housing is controlled electrically by the gyroscopic compass, being so designed that the inclosed pendulums, fixed with respect to the housing, are always oriented to swing in east-west and north-south planes. The instrument is lowered by cable. Insulted conductors, incorporated in the cable, carry the electric current from the ground surface to the apparatus. In actual use, the instrument is slowly lowered, with the gyroscope rotating and thereby keeping the pendulums always oriented. At every 10 feet (or any other desired interval) a telegraph key is depressed by the operator, thus causing an armature to press a fine needle into the record paper associated with each pendulum.

Rieber's Method

Frank Rieber, of San Francisco, has improved upon the device built by Dr. C. D. Hanna, who in 1926 conceived the idea of using the inertia of a heavy mass, mounted inside the drill stem, for controlling the unlocking and re-locking of a compass and a plumb-bob. In Rieber's instrument there is a pool of mercury in a steel case, and in this mercury is a four-bladed steel paddle, its shaft extending up and outside of the case. When the drill stem is rotated, the paddle starts the mercury whirling, and when the drill stem is stopped, the mercury continues to whirl for some time. Through an ingenious mechanism, which utilizes the effect of the reversed rotation of the retarded drill stem, provided the mercury acquires sufficient speed, a train of clockwork is tripped into action, and this in turn releases the compass needle and the plumb-bob, each of which, after coming to rest, automatically punches its position on an aluminum disc. A third mark registers the position of the disc relative to the case and drill stem. Thus a record is obtained

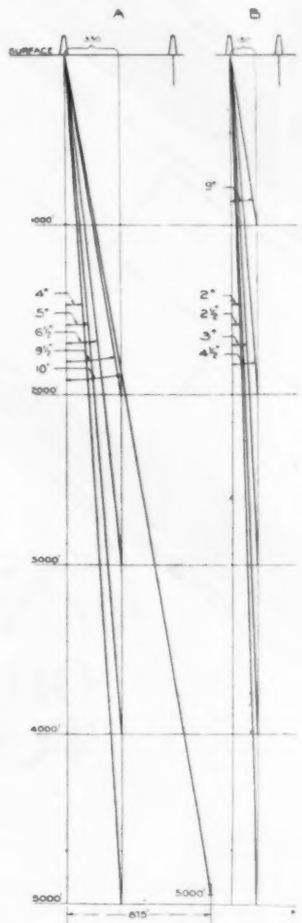


FIGURE 33

of the direction and angle of inclination of the hole.

For each reading a new disc is mechanically brought into position, the old one being removed to a receiving chamber.

Defects and Limitations in Methods of Surveying Holes

It may be worth while mentioning here some of the more obvious criticisms which may be made of the methods of surveying holes. In some cases the question concerns merely limits of accuracy, while in other cases more serious difficulties may be present. For instance, the small angular errors which may be due to the particular position of the surveying instrument in the hole, or which may be due to capillarity in the acid-bottle method, are not important, for it is doubtful whether the exact angle of deviation of the hole from the vertical, to an accuracy of less than, let us say, 1° or 1½°, is generally possible of attainment.

On the other hand, the objection raised against the magnetic compass, that it is subject to irregular deflection in strata containing magnetite or other magnetic substances, is reasonable. However, this objection has been laregly overruled by experience. In numerous instances, in mining regions where there is no magnetic ore, records obtained by the Maas compass have been proved to be essentially correct by subsequent mine excavations. Magnetic substances seldom occur in sufficient quantities in regions where oil is produced to have any noticeable effect on the needle. Such effects would be local in any event and would probably be detected without difficulty because of their irregularity compared with the majority of the readings made in the hole. To reduce the chance of mistakes as far as possible, readings by the magnetic compass may be made at two or three points a few feet apart, at each selected depth of observation.

Pipe Effect on Magnetic Needle

An important objection which has always been raised against the use of any instrument having a magnetic needle lies in the fact that the needle may be affected by the iron pipe in cased holes. However, according to some recent experiments we are told that in some cases the magnetism in a string of pipe may be concentrated at the ends of the string. That such is always the case seems doubtful, but remains to be demonstrated.

To many engineers the idea that a long string of pipe, suspended by its upper end, will always maintain a constant orientation throughout its length, as it is built up joint by joint, at the surface of the ground and lowered into a hole, is difficult to conceive.

The fact that the threading is all in one direction and the fact that the iron or steel of which the pipe is made cannot be quite homogeneous in character, lead one to believe that, as more and more weight is added by building up the string, unequal strains induced will ordinarily result in a net twist of the lower end of the pipe, either in a clockwise or a counter-clockwise direction, as the case may be.

This is one suggestion. Another along the same line, is that, due to the bent shape induced on a string of pipe suspended in a crooked hole, and also due to friction against the walls of such a hole—in each instance more particularly where the curvature of the hole is not all in one vertical plane—the lower end of such a string of pipe is not likely to maintain its original orientation with increasing depth.

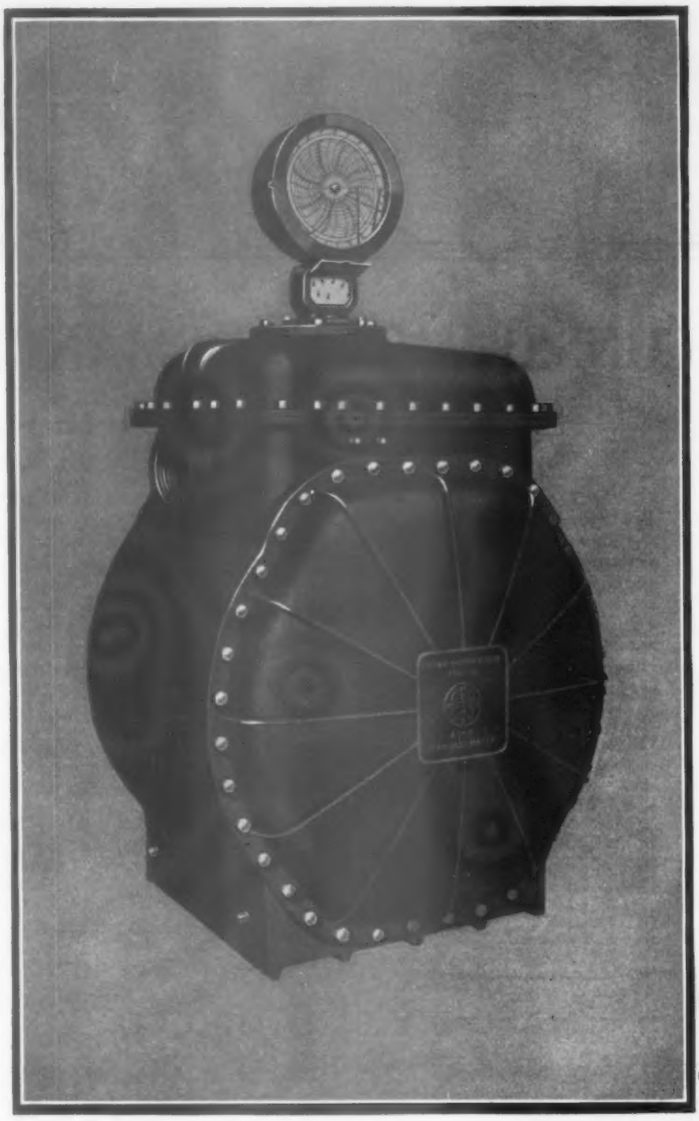
Twisting Pipe

Very few tests have been undertaken to demonstrate whether these suggestions are valid. We have heard of one case in Germany where, out of eight measure-

[37]Personal communication from H. H. Hill.

[38]Described by F. G. D. Muller in "Much Trouble Caused by Crooked Holes," Oil Weekly, April 19, 1924, p. 27.

In Measurement IRON-CASE is trump



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ments made by an oriented string of pipe to a depth of less than 1000 feet, six were eventually proved to be correct and two were shown to be in error because of the twisting of the pipe. Other tests have been made, by the use of acid bottles placed in a drill stem, to demonstrate that the stem is rigid. Thus, the bottles, when withdrawn, showed that 2600 feet of drill stem had rotated throughout its length as many degrees as the angle through which it was turned on the derrick floor. But this in no way proved that the lower end had not acquired a twist in going into the hole, a twist which would disappear in coming out of the hole, and therefore a twist which could not be measured from any observations at the surface.

Is not this a problem which ought to be solved? We have recommended making a study of the behavior of a string of pipe suspended in a vertical mines shaft.[39] We would now suggest further—and this applies to any instruments intended for surveying both the direction and angle of inclination of holes—that wherever holes run together, efforts be made to secure the privilege of surveying and checking the results in both holes. These surveys ought to show intersection of the holes.

The gyroscope has its defects which can be explained only by a physicist in terms beyond our ken. One important objection is that it is extremely delicate, and a second lies in its complexity and high cost of manufacture.

Methods of Taking Oriented Cores

Several methods have been devised for taking oriented cores. One of these is as follows: A small rathole is drilled at the bottom of the larger hole and an instrument constructed to register angle and direction of inclination is firmly placed in the rathole. After a sufficient time has elapsed, a large core barrel is run into the hole, and a core is secured by cutting round the instrument. The core and the instrument are then withdrawn together for study.

In California, George A. Macready has invented a core barrel equipped with plumb bob, magnetic compass, and photographic apparatus.

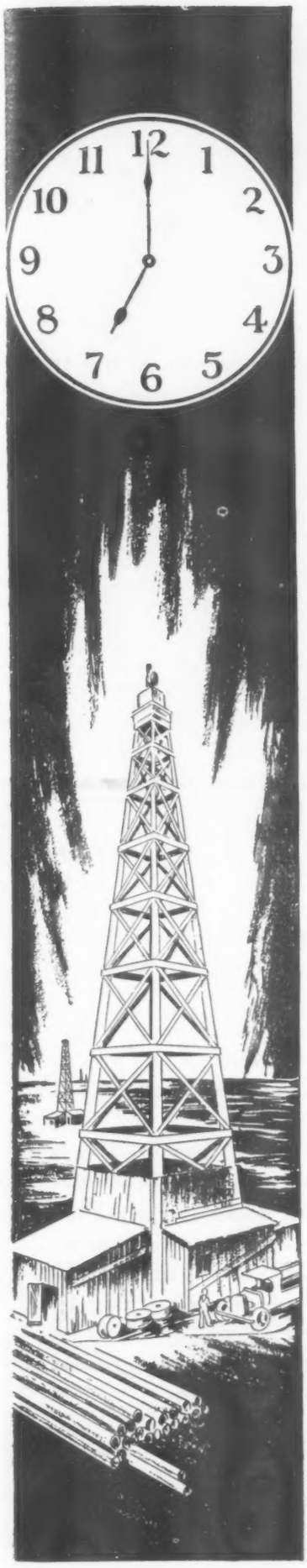
In conjunction with Dr. Martienssen's gyroscopic apparatus, he has an instrument for marking the bottom of the hole in such a way that, when a core is subsequently taken, its position can be determined relative to the instrument and therefore relative to compass directions and the vertical.

Riever's apparatus can also be used for determining the orientation of cores.

Causes of the Crookedness of Holes

Causes of deviation of holes from their desired courses may be classified as geological and mechanical. The geological causes, however, are unavoidable. They are conditions which cannot be altered, but which demand recognition, for they

[39] "The Problem of Crooked Holes," Oil Weekly, Aug. 31, 1928, p. 34.



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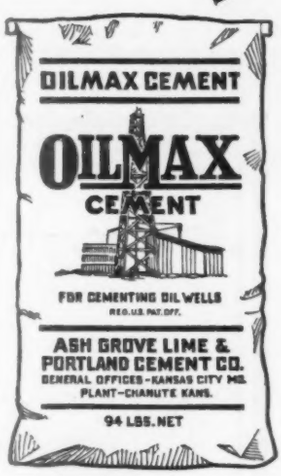

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can be overcome only by proper methods of drilling.

Geological causes.—Among the geological conditions which may cause a hole to deviate from the vertical are:

1. Presence of "boulders" or concretions which, if encountered at an angle, tend to deflect the bit.
2. Dip of the bedding, particularly if the strata consists of alternating hard and soft layers.
3. Presence of fissures, faults, or veins, which offer either considerably more resistance or considerably less resistance to penetration by the bit than the rocks in which they occur.
4. The presence of caverns or other open spaces.
5. Caving and heaving of rock materials when exposed during drilling.

Mechanical causes.—Following are some of the mechanical causes for the crookedness of holes:[40]

1. Starting the hole off the vertical.
2. Using poor material.
3. Use of bit not best adapted to the conditions.
4. Use of bit with too much cutting clearance.
5. Spudding the bit.
6. Use of too small a drill stem.
7. Bent or corkscrew form of drill stem, with resulting rubbing of sides of holes.
8. Too much clearance between drill stem and hole.
9. Sidetracking.
10. Use of mud of wrong consistency.
11. Use of big pumps.
12. Coring or ratholing, or otherwise reducing hole, where sufficient precautions are not taken to centre of the small hole and keep it straight.
13. Application of too much pressure on the bit.

Most of these causes, as stated, are self-explanatory. One or two of them deserve a little discussion. Practically all those who have given thought to the problem of crooked holes are agreed that one of the principal causes is excessive pressure on the bit. In other words, not enough of the weight of the drill stem is lifted off the cutting surface of the bit. As a consequence the drill stem may be bent, especially when the diameter of the hole is considerably more than the diameter of the drill pipe, and where, for one reason or another, the hole has become abnormally enlarged. Drillers with whom we have talked are of the opinion that holes—chiefly of rotary holes—begin to deviate from the vertical between 500 and 1000 feet below the surface. Some of them claim as high a level as 250 or 300 feet. Why is this? Is it because the weight of 500 or 1000 feet of drill stem is perhaps as much weight as should be applied to the bit while in operation. With ordinary 25-pound-6-inch pipe the weight, for a complete drill stem and 11-inch bit, in a hole 1000 feet deep, would be about 32,900 pounds, after deducting for buoyancy due to the mud, assumed to weigh 10 pounds per gallon. For 22-pound-6-inch drill stem with an eight-inch bit, this figure would be about 30,400 pounds. However, we know that much greater weights are used.[41] R. S. Cartwright[42] suggested 38,000 pounds as the most efficient weight for all formations. Possibly this will be proved to be too great, when we have learned more as to what weights are most satisfactory.

Another potent factor in causing holes to turn out of line is the hydraulicking action of the mud where it is forced out of the bit. Many drillers admit that, in soft formations, the "drilling" amounts to little more than jetting the hole down. The force of this jetting action as it comes out of the small holes in the bit must be tremendous where 400 or more gallons are being pumped down every minute. By this hydraulicking, undoubtedly wide openings are sometimes cut, instead of a clean cylindrical hole of uniform diameter, and these openings afford ample opportunity for the drill stem, under pressure, to bend out of the

[40] See E. J. McKee, "Some Causes and Effects of Crooked Holes," Oil Weekly, Nov. 23, 1928, p. 60.

[41] R. Van A. Mills discusses this matter on p. 131 of his excellent paper, "Crooked Holes Discussed by Engineers," Oil & Gas Jour. Aug. 23, 1928, p. 30.

[42] "Rotary Drilling Problems," published in Oil Weekly, Nov. 2, 1928, p. 41. Cartwright gives a table showing suitable weights to be applied in drilling rocks of different kinds. In several catalogues, proper weights are suggested by the manufacturers for special types of bits.

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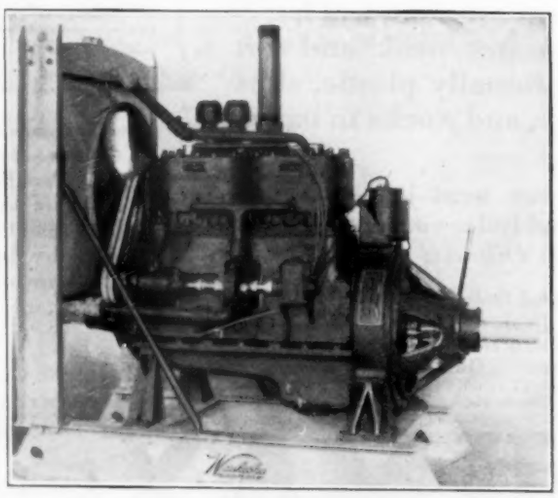

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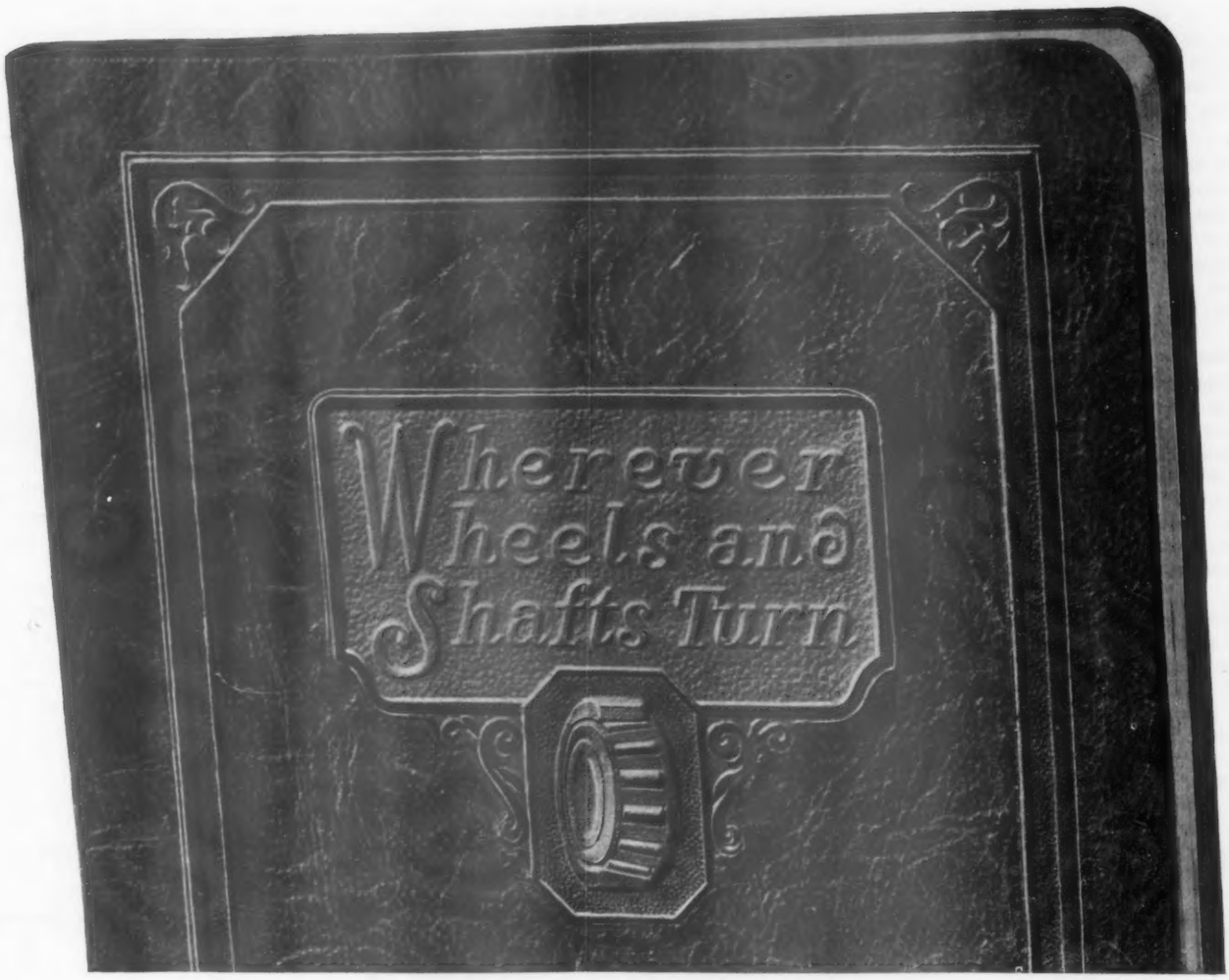

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axis of the hole. Furthermore the jetting, or hydraulicking, may wash out the bottom of the hole off centre and so lead the bit astray.

We believe that these two factors of excessive weight on the bit and excessive speed of circulation are most important in casing crookedness. Most of the other factors are contributary, but under properly controlled pressure and circulation and with adequate equipment, these other factors can be largely overcome.

Remedies for the Deviation of Holes

Wherever possible the geologist should warn the driller of any known contacts between formations of very different resistances to the action of the bit, and of any known faults, or other similar features. But the best warning is: expect these features anywhere. Drill in a manner best suited to overcome these unknown conditions whenever they occur.

Since geological conditions which may favor the deviation of holes can neither be altered nor predicted, except in a general way, the opportunity for correcting the defect rests almost entirely with the driller. If the driller or the drilling contractor is told that he must reach the pay sand, or any specified depth, in the shortest possible time, then those who gave him this order are to blame. First, then, those who are responsible for rushing the drilling must be disillusioned. They must learn that less speed with a more perfect hole is, in the long run, most economical.

If excessive pressure on the bit and hydraulicking are the principal mechanical causes of crooked holes, we must make serious efforts to better these conditions. Weight indicators should be installed. Probably improved indicators can be made, and more satisfactory bits can be designed. In any event these phases of drilling should be carefully and intensively studied.

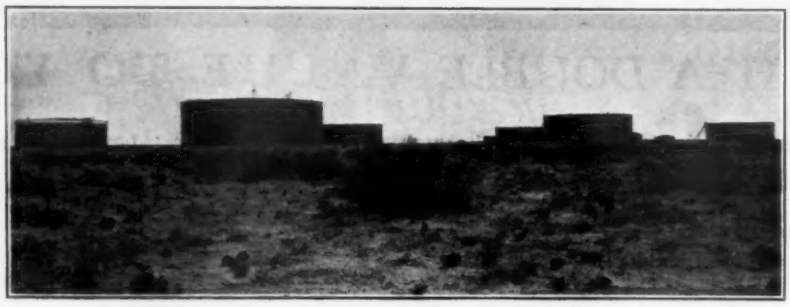
Clearance of the Drill Stem in the Hole

To reduce the risk occasioned by too much clearance between the drill stem and the hole (whether open or cased), several contrivances have been used or suggested. Rubber collars may be placed at intervals, generally on every joint or every other joint, on the drill stem when it is rotating inside casing. They were supplied to protect the drill collars, but they also serve to centre the pipe. Some success is claimed by drillers who have placed a roller reamer just above the bit and another one or two joints higher up in the drill stem. In reducing a hole, a diamond-point bit is sometimes used to drill a conical bottom to the hole, so that the smaller bit will start in a central position. However, in ratholing and coring, precautions are seldom taken to centre the small hole. Frequently the drill stem is made up with several joints of the next larger size of pipe at the lower end of the string. None of these methods are entirely satisfactory for all conditions and most of them lose their efficacy if too much pressure is applied in the drilling

Limitation of Permissible Angle of Deviation in Drilling

The most concerted effort to remedy the drilling of crooked holes has been made during the last year in the Seminole field in Oklahoma. Here so many holes wandered so far from the straight and narrow path that the operators simply had to sit up and take notice. And they have done so with effect. The contractors are admitting that they *can* drill straighter holes, but they say it costs them about $2500 more per 4000-foot well. In Some cases they are writing contracts which require the plugging back and redrilling of holes which are found to deviate more than 10 degrees or 15 degrees from the vertical. For example, the following is quoted from the rotary drilling contract now being used by one company (the first party) with its drilling contractors (second party):

"First party shall have the right at any time it may desire to make a survey of the well to determine the condition of the hole, at the risk and expense of second party. Such survey shall be made by such method as first party may desire. When such test is made and the hole is found to deviate as much as 15 *degrees from perpendicular, first party may require second party to redrill said hole at second party's expense. If after completion of said well it is surveyed and found to exceed* 15 *degrees variation from*



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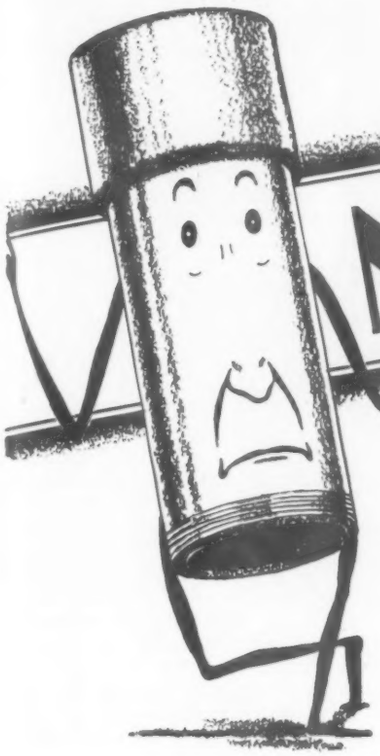

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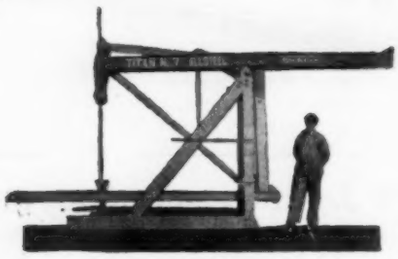

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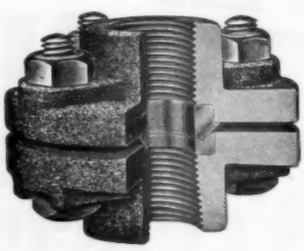

perpendicular, it shall be optional with first party whether or not it accepts the hole, and in case of non-acceptance first party shall not be liable for any expense connected with drilling said well and will be under no obligation to second party."

The question has arisen as to whether 10 degrees or 15 degrees or some other angle is suitable as a maximum permissible limit. Let us glance at Figure 33. In the left diagram the well spacing is 660 feet, and in the diagram on the right it is 300 feet. On the basis of a permissible maximum limit of 10 degrees for the deviation of the hole from the vertical, and assuming that just this angle is maintained all the way down from the surface, a hole 1000 feet deep would be 174 feet out of plumb at the bottom, a 2000-foot well would be 347 feet off; a 3000-foot well, 521 feet off; a 4000-foot well, 695 feet off, and a 5000-foot well would be 869 feet off the vertical. Obviously, a 10-degree limit would be too great for a 2000-foot hole, if the hole deviated 10 degrees all the way from the surface. It would be too great for a 3000-foot well assumed to have been drilled vertical to 1000 feet and then to have deviated 10 degrees from the vertical to the bottom. And so on.

To be sure, this is not quite the way in which holes go crooked, but the diagram proves that 10 degrees is too great a limit to allow for a 400-foot well, unless this angle of deviation commences below a depth of 2000 feet.

For comparison, lines have been drawn to show the approximate angles, subtended at different depths by a horizontal offset of 330 feet in Figure 33A, and 150 feet in Figure 33B.

It is questionable whether, in drilling, any angle of deviation can be safely permitted much greater than the angle which, at any given depth would eventually displace the bottom of the hole more than half the offset distance [43]away from the vertical through the mouth of the hole.

The fact that crooked holes do not turn off sharply and then maintain a straight inclined course, but instead bend more or less gradually and drift in a horizonal sense, means that the conditions illustrated in Figure 33 are extreme. Consequently, if these conditions are taken as a basis for estimate, as we have done, a little more latitude in vertical angular deviation can be allowed without danger.

Advantages of the Oriented Whipstock

Where a hole is found to deviate as much as the permissible angle, according to the clause quoted above from a drilling contract form, some of the Oklahoma operators have required that the hole be plugged back to the part known to be vertical and then that it be redrilled. This was done in the well shown in Figure 4. This method has met with some success, but it is rather haphazard and unscientific, for the second hole is as likely to be crooked as the first, starting as it does against a hard cement plug. A much more practical plan would be to set a properly oriented wedge or whipstock, at

[43]The distance between offset wells in the particular field.

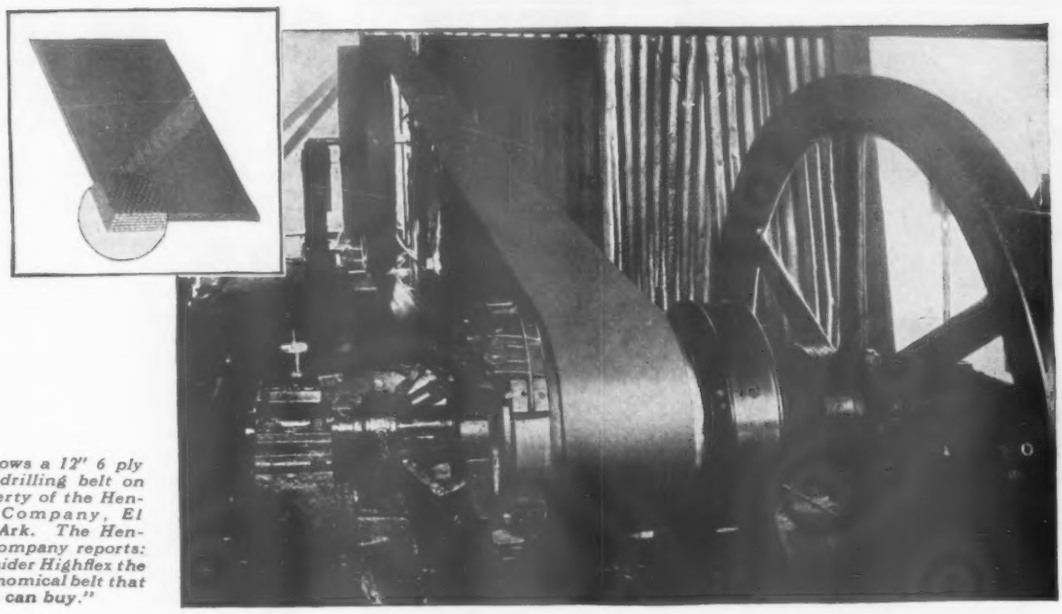

Photo shows a 12" 6 ply Highflex drilling belt on the property of the Henderson Company, El Dorado, Ark. The Henderson Company reports: "We consider Highflex the most economical belt that we can buy."

Highflex belts outperform old type belts on hard drives

Goodrich Highflex Principle does away with past methods of belt construction. Greater stamina and better resistance to abuse.

* * *

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As a result, there is nothing to interfere with the uniform free action of individual plies; Highflex belts, therefore, have a greater power capacity.

Because there are no folds at the edge of the belt, Highflex belts eliminate bootlegging. Air pockets that travel lengthwise through a belt of ordinary construction, quickly escape to the edge of Highflex belts.

Fig. 1 Fig. 2

You can test the Highflex Principle this easy way:

Bend a pad of paper or booklet with the fingers. When viewed from the edge (fig. 1) it assumes a natural uniform curve because of the unhampered action of the plies. Now, if several layers of paper are folded and then bent (fig. 2) you instantly see how the fold distorts the curve and impedes the free movement of the individual layers.

Highflex belts, one operator tells us, have given "fifteen months against three months with former belts on hardest drives." A driller writes that his Highflex belt is "just as good as when applied, after drilling three wells."

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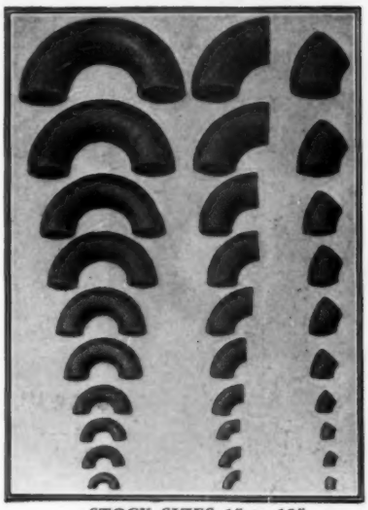

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the bottom of the crooked hole, and then continue drilling, in this manner saving the cost of plugging back and redrilling and saving the risk of drilling the second hole crooked.

On the assumption that it is possible to measure the direction and angle of deviation at any point in a crooked hole, then there is no mechanical reason why a whipstock cannot be set in any azimuth desired and at any depth desired, provided the right kind of equipment is available. Oriented wedges for correcting deflection have long been known and used in diamond drilling. A method conceived by a Mr. Welldon, and improved and used in South Africa by A. Payne Gallway, has been described by John I. Hoffman.[46] In Germany, Dr. O. Martiessen has also devised a method of wedging holes back toward the required position.

Conclusion

In conclusion, then we would emphasize this fact, that, whether the immediate effects of crooked holes are excess of footage drilled, or twist-offs, fishing jobs, and other adversities in drilling, or wear and loss in pumping and other producing operations, or misinterpretation of geological data, or erroneous results in production engineering problems, the final consequence is financial loss. Difficulties and the losses are going to be greater, the deeper we drill for oil. We must learn how to drill holes vertical and how best to bring them back into their proper position when they are not vertical. We must improve the accuracy of our subsurface information by securing correct surveys of the underground courses of holes and by establishing the correct orientation of cores from these holes.

Once again, as so often in the past, the industry is forced to admit that, in the long run, careful scientific methods, rather than hit-or-miss untechnical methods, are most economical, and therefore most practical.

[46]John I. Hoffman, op. cit., pp. 486-7.

Midway Curtailment

Taft, Calif.—More stringent curtailment measures are expected to reduce drilling operations in parts of Midway field, where an extensive exploration of the deeper sands had been planned. Several wells, ostensibly started for the lower sands, are idle, and others are expected to be shut down. Republic Petroleum Company is one exception, having located a well on Section 8-32-23, where the company has completed three deep wells.

Wildcat Shutoff Fails

Santa Barbara, Calif.—Failure of the Elwood Consolidated Oil Company to secure a water shutof in Rekar 1, near the Goleta field, adds some doubt to the formation now being tested and may necessitate drilling deeper. The well cut some good oil sand, but failed to show much oil or gas on the water shutoff test. Rekar 1 was drilled to 3310 feet.

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One hole went to 4350 feet in five months and nine days. In the other, 4005 feet of 6⅝-inch casing was set and cemented one month and twenty-six days after spudding in.

Continuous core was recovered wherever desired.

The engineer in charge worked up complete figures on the diamond drill, and on a rotary outfit, for casing a hole to 6000 feet, and drilling it to 7000 (diamond drills have taken core from below 6700 feet).

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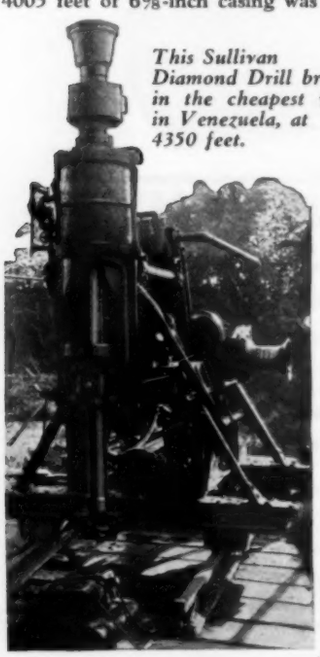

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Carpenteria Wildcat Is a Disappointment

Carpenteria, Cal.—Flowing muddy water and gas and showing no oil, Continental Oil Company's Franklin 1, the most important wildcat in Santa Barbara County, made an almost complete failure on a recent production test from 4100 feet. The terrific gas pressure, which recently accounted for the death of two men, failed to bring a flow of oil and the well falls back into the doubtful class. The company has used barrite and hematite in an effort to bring in the well under control, and it is possible that these heavy fluids have temporarily sealed off the oil. This belief is based on theory, however, and may prove to be erroneous. Gas flow was estimated at less than one-half million cubic feet, or much smaller than originally thought. After flowing water and gas for several hours, the well was shut in.

Leasing at Summerland

Summerland, Calif.—George F. Getty, independent operator, has secured leases on the greater part of this little town, along with more than a half mile of beach frontage and several acres on all sides of the town. Several hundred shallow wells have been drilled on the leases, many of which were located in the Pacific Ocean and are still producing from one-fourth to one barrel each daily. The lease on which George F. Becker drilled a well to 3100 feet was also included in the deal, and the Getty interests will carry the well deeper. Another well will be started soon. The Summerland field is producing from a small monocline which rises up out of the oceans and feathers out near the beach.

Mid-Continent Scouts to Meet April 26-27

Tulsa.—The annual convention of the Mid-Continent Oil Scouts and Land Men's Association will be held April 26 and 27, at Wichita, Kansas.

The Brodview hotel has been designated as association headquarters. Registration and all business sessions will be held there.

E. J. Gordon, scout for the Pure Oil Company, in the Wichita district, has been made general chairman of arrangements for the convention.

The program is being drawn up by Fred J. Hill, president of the Mid-Continent Petroleum Corporation, and Rex L. Dawson, chairman of the board of directors of the Carter Oil Company.

It is expected that steps will be taken at the convention for the merger of the Mid-Continent Oil Scouts and Land Men's Association with the National Oil Scouts Association, which covers Texas, Oklahoma, New Mexico, Arkansas and Louisiana.

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Stocks in All Principal Fields

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

SUMMARIZED REVIEW OF FIELD RESULTS

State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Prod. This Week	Initial Prod. Last Week
Arkansas	1	3	..	2	..	..	1	1	...	421
California	25	18	21	18	..	..	4	..	31,325	16,675
Indiana	1	8	..	2	1	3	..	3	...	20
Kansas	9	46	5	14	..	3	4	29	4,395	1,750
Kentucky	14	14	10	11	1	..	3	3	352	640
Louisiana	23	14	8	4	4	5	11	5	2,215	1,640
Michigan	4	10	4	4	..	2	..	4	4,000	2,515
New York	..	5	..	5	..	..	..	..	...	13
Ohio	25	28	10	8	6	11	9	9	272	256
Oklahoma	83	78	36	36	3	11	44	31	15,730	12,595
Pennsylvania	45	61	42	60	1	..	2	1	575	319
Texas	151	126	79	67	12	8	60	51	24,389	36,541
West Virginia	32	15	6	4	21	9	5	2	84	19
Wyoming	..	1	..	1	..	..	..	..	...	100
Total	413	427	221	236	49	52	143	139	83,337	73,504
Increase this week	....	..	..	..	..	..	4	..	9,833	...
Decrease this week	 14	..	15	..	3	..	..	..	...	...

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
BLAINE COUNTY—		
W. J. Donelly, Dickens 1, se ne, 26-15-12w	*	4509
CARTER COUNTY—		
Devonian Oil Co., Myer 1, sw ne, 19-5s-3w	*	2978
Humble, Dixon 6, nw sw nw, 30-1s-3w	*	4563
COTTON COUNTY—		
Guiler & Dyson, Thomas 1, se sw, 16-4s-12w	*	2128
Perkins & Cullum, Priddy 6, ne nw ne, 3-2s-10w	*	2205
CREEK COUNTY—		
Shaffer & Billingslea, Lewis 2, sw, 10-15-8e	600	3814
Tidal, Parks 2, se nw ne, 21-16-8e	80	3660
A. J. Spears et al, Glenn 9, nw ne ne nw, 11-17-12e	40	1747
Billingslea et al, Stidham 1, se sw se, 21-17-8e	*	3671
Jackson & Wise, Frank 1, sw nw sw sw, 1-17-11e	*	2560
A. Avers et al, Fulsom 1, c sw sw sw, 7-17-7e	*	2308
Shaffer, McIntosh 1, sw ne nw, 26-18-7e	*	3570
GARVIN COUNTY—		
Texas Pacific, Derdyn 4, ne sw se, 8-1n-3w	40	1669
GRADY COUNTY—		
Meridian Gas Co., Woods 4, nw, 2-4n-8w	¶10	2335
HUGHES COUNTY—		
Twin State, Harjo 1, nw ne se, 8-8-9e	*	3454
KAY COUNTY—		
Oil Belt Oil Co., Murdock 2, se sw sw, 2-27-3e	*	1180
KIOWA COUNTY—		
Conner & Son, No. 1, sw nw nw, 25-7n-16w	*	508
Head et al, Prough 1, se sw sw, 29-6n-16w	*	500
Alexander et al, Fuqua 3, se sw sw ne, 18-6n-16w	*	451
Malernee et al, School 1, sw nw, 16-6n-16w	*	1250
Conner & Son, Geis 1, se nw ne, 26-7n-16w	*	1712
LOGAN COUNTY—		
Gypsy, Jewell 1, nw, 22-18-4w	*	4390
Sinclair, Webber 4, se ne se, 18-19-4w	*	4915
MUSKOGEE COUNTY—		
W. S. Metzger, Taylor 1 (owd), cel ne se, 14-14-18e	¶½	907
E. A. Smith, Maher 1, c se nw, 21-13-19e	*	1100
Joe Paul et al, James 5, ne sw sw, 17-14-17e	*	1501
E. A. Hutchinson, Mason 4, cwl ne ne, 31-15-15e	*	1661
OKFUSKEE COUNTY—		
J. J. Schock, Holmes 1a, cel sw ne, 29-11-1e	15	1656
C. L. McMahon et al, Fixico 1, ne nw se, 29-12-10e	55	3167
W. L. Umburn et al, Sullivan 2, sw se se, 1-10-11e	*	2950
OKMULGEE COUNTY—		
Aiken Oil Co. et al, Fox 10, ne se se nw, 22-13-14e	15	2477
Sheldon Oil Co., Shelton 4, se sw se, 15-13-12e	40	2902
R. A. Garrett, Sneed 1, sw se se nw, 9-14-13e	*	2675
OSAGE COUNTY—		
L. G. Stanley No. 6, nw sw sw se, 36-22-8e	120	467
Texas No. 6, nw sw se, 30-25-8e	190	2422
H. H. Mundy No. 2, nw se, 4-20-9e	*	520
Phillips No. 1, sw nw ne, 33-25-6e	*	3327
Texas No. 1, sw, 29-28-11e	*	2218
PAWNEE COUNTY—		
Superior and Swift No. 1, sw nw ne, 35-20-9e	*	2110
PITTSBURGH COUNTY—		
Quinton Spelter Co., Hughes 1, nw se, 23-7-17e	¶2½	2415
PONTOTOC COUNTY—		
La Salle Oil Co., Bumpers 2, ne, 31-5-5e	45	2644
American O. & R. Co., Jones 2, se ne ne, 18-5-5e	*	2667
POTTAWATOMIE COUNTY—		
Sinclair, Lewis 1, nw sw sw, 6-8-5e	25	4095
Amerada, Goosland 2, se ne sw, 8-8-5e	25	4347
Gypsy, Miller 5, ne se se, 18-8-5e	60	4025
Laurel O. & G. Co., Gillington 2, ne nw, 18-8-5e	1120	4160
Marland and Shell, Everetts 1, ne nw sw, 18-8-5e	1405	4190
Pure, Lindley 5, sw nw se, 18-8-5e	475	4095
Slick and White Eagle, Villines 1, nw se, 20-8-5e	115	4300
Magnolia, Youts 3, nw se sw, 20-7-5e	25	4330
Amerada, Hallum 2, se, 1-8-4e	80	4207
Gypsy, Roseman 1, nw ne nw ne, 26-7-4e	1585	4624
Magnolia, Cherry "B" 2, sw se ne, 26-7-4e	50	4180
Sinclair, Lewis 2, sw, 6-8-5e	*	4195
Independent, Carson 2, ne nw nw, 23-7-4e	*	4355
Tidal, Smith 1, ne nw se, 26-7-4e	*	4485
Magnolia, School Land No. 75, 1, se nw, 36-7-3e	*	4572
SEMINOLE COUNTY—		
Mid Continent, Saloche 6, nw sw sw, 33-10-5e	230	4353
Carter, Davis 3, se sw nw, 13-9-5e	340	4311
Magnolia, Gillim 2, ne sw, 13-9-5e	3160	4264
Carter et al, Gillim 3, sw nw se, 13-9-5e	200	4236
Gypsy, Mission 2, owdd, se sw, 5-8-6e	210	4444
Gypsy, Barkus 2, sw se sw, 6-8-6e	425	4749
Gypsy, S. Barkus 2, sw nw, 7-8-6e, owdd	235	4488
Carter, Fuswa 1, owdd, nw ne nw, 18-8-6e	230	4641
Barnsdall, Coker 3, se ne sw, 11-8-5e	925	4172
Mid Continent, Smith 3, sw nw ne, 5-7-7e	2770	4401
Texas, Janey 3, ne nw sw, 11-7-6e	250	4488
Pure, Brinson 3, se nw sw, 2407-6e	400	4265
Empire & Marland, Anderson 2, se sw, 13-9-5e	*	4573
Shell, Jefferis 2, se sw, 32-8-7e	*	4566
Gypsy, Mimey 1, nw ne, 14-8-5e	*	4605
Snowden & McSweeney, Tiger 3, se nw nw, 13-7-6e	*	4637
STEPHENS COUNTY—		
Pace et al, Medley 1, sw nw ne, 2-2s-8w	25	2198
Atlantic Oil Prod. Co., Taylor 2, sw nw nw, 12-1s-4w	125	3678
Pelwin Oil Co., Baker 1, sw ne nw, 36-2s-6w	*	2001
Magnolia, School Land No. 4, 1, sw se, 13-1s-9w	*	3889
Pace et al, Woodhouser 1, se sw se, 36-1s-8w	*	2289
Magnolia, Revire 2, se ne nw, 24-1s-4w	*	4655
West 1, se sw, 33-2n-5w	*	4440
TULSA COUNTY—		
C. O. Buckles, Brown 2, c nw sw, 7-17-13e	*	1899
William Wood Syndicate, Franklin 5, c se sw, 36-19-11e	*	2212
WAGONER COUNTY—		
C. L. Beam et al, Ford 1, ne se, 24-16-17e	*	1485

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
ELLIS COUNTY—		
Labette Oil Co., Urban 1, ne nw nw, 19-15-16w	*	3905
Phillips, Brull 1, c nw, 34-14-17w	*	3895
Empire, Wann 1, ne, 21-12-19w	*	3986
HARVEY COUNTY—		
Tidal and Austin, Neiman 1, sw, 21-24-2e	*	3425
SEDGWICK COUNTY—		
Davis and Skelly et al, Wilson 1, ne nw ne, 1-26-1w	550	3388
Bu Vi Bar et al, Goodrich 1, nw sw se, 6-26-1e	500	3489
Bu Vi Bar et al, Emerich 1, cwl se sw, 6-26-1e	1135	3433
Bu Vi Bar et al, Bright "B" 1, sw se nw nw, 6-26-1e	810	3373
Bu Vi Bar et al, Branch 1, cel w½ se sw, 6-26-1e	1400	3381

EASTERN STATES

CENTRAL OHIO

Company, Well and Location	Initial Production Bbls.	Depth
LICKING COUNTY—		
Hulse & Kundtz, Chaney 7	105	2893
Preston Oil Co., Wright 13	8	....
H. C. Farmer, Wright 4	12	761
MEDINA COUNTY—		
East Ohio Gas Co., Jelenies 1	5	....
Ohio Fuel Gas Co., Kenzig 1	¶¾	....
MUSKINGUM COUNTY—		
The Pure Oil Co., Crawford 5	80	2901
Hope Const. & Ref. Co., Butler 2	20	3100
PERRY COUNTY—		
Scholl & Co., Lovell 1	¶1	3401
Ohio Fuel Gas Co., Watts 1	¶1	3540
HOLMES COUNTY—		
Ohio Fuel Gas Co., Miller 1	*	....
Wm. Detler, Dahl 1	*	823
GUERNSEY COUNTY—		
Jewell & Co., Oldhams 2	35	3380
ATHENS COUNTY—		
Ohio Fuel Gas Co., Elliott 1	¶¼	1624
WAYNE COUNTY—		
Harmon & George, Diddle 1	*	....

NORTHWESTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
HANCOCK COUNTY—		
R. W. Kirk & Co., Hayes 1	¶¼	1500
WOOD COUNTY—		
W. E. Donnelly, South 1	*	1344

(Continued on page 94)

Chester Double Lengths Do Not Leak and Will Not Break Under Severest Tests

THESE pieces welded in double lengths were subjected to the following extreme tests:

The pieces were dropped several times from height of railroad car upon a rail. These tests in no way fractured or harmed the weld.

The pieces were anchored near the gas weld and a chain attached to a locomotive was secured near the end of the pipe. The locomotive pulled on the pipe distorting it as shown in the photograph near weld indicated by arrow. The weld remained intact.

No double length pipe can be stronger than Chester Double Length Pipe.

The field test of the long 10-inch line from which these pieces were selected at random did not develop a single leak in the weld.

The careful inspection, crushing tests and final hydrostatic test after welding into double lengths insure 100% satisfaction in service.

Chester also makes all classes of Genuine Wrought Iron Tubular Goods

South Chester Tube Company, — Chester, Pa.

District Sales Managers:

W. E. Gibson, 801 Columbia Bank Bldg., Pittsburgh, Pa.
H. A. Morse, 30 Church St., New York City
J. P. Cooney, 715-716 A. G. Bartlett Bldg., Los Angeles, Cal
J. P. Steele, 305 Petroleum Bldg., Fort Worth, Texas

District Offices:

Tulsa, Oklahoma—J. D. Swartz, 247 West 13th St., Tulsa, Oklahoma
Houston, Texas—P. H. Selk, Jr., 2108 Mills St., Houston, Texas
District Warehouses: Houston, Texas; Thenard, Cal.

Distributors:

Prichard Supply Co. Mannington, W. Va.
Mather & Waynesburg, Pa.
Kane Supply Co. Kane, Pa.

Petroleum Supply Co., Houston, Tex., Norphlet, Ark.
Wagner Supply Co., Fort Worth, Cross Plains, Breckenridge, Iraan, Wink, Forsan and Odessa, Texas.

Bridgeport Machine Co., Wichita, Kansas, and Branches throughout Kansas and Oklahoma.
United Oil Well Supply Co., 712 A. G. Bartlett Bldg., Los Angeles, Calif.

Great Northern Tool & Supply Co., Billings and Kevin, Mont.
Kemmerer and Cody, Wyoming.

CHESTER

STEEL CASING

SPECIALISTS IN CASING FOR DEEP WELL DRILLING

LINE PIPE

Say you saw it in The OIL WEEKLY

(Continued from page 92)

INDIANA

Company, Well and Location	Initial Production Bbls.	Depth
PIKE COUNTY—		
Bowman & Co., McRelip 1	¶2	....

MICHIGAN

MUSKEGON COUNTY—		
Duchesse Oil Co., Kieft 1	¶5½-1500	2025
Thompson Bros., Trenz 1	¶10-1500	2023
Double Shot Oil Co., Dykrsta 1	700	2035
Wright Oil Co., Giles 3	300	2048

EASTERN STATES

PENNSYLVANIA

BRADFORD FIELD—		
South Penn Oil Co., Riddle Estate 4	2	....
Riddle Estate 5	2	....
Riddle Estate 6	pressure	....
Weston Jr., 3	2	....
C. A. Duke, Scio 3	3	....
Mix Creek Oil Co., Mix Creek (3 wells 58, 59, 60	pressure	....
Mix Creek 61	2	....
D. J. Moody, Werthman 2	4	....
S. H. Elder & Co., Wright 16	2	....
Hausman & Co., Hausman 2	2	....
W. J. Frederick, Eisb 3	2	....
Eisb 4	2	....
T. B. Wilcox Borden 1	3	....
Devore & Potter, Russell 3	3	....
C. E. Potter, Irvine 8	3	....
J. W. Kaufman, Rounds 27	25	....
G. W. Smith Estate, Smith 4	15	....
Messer Oil Co., Messer 1	10	....
Wright & Saph, Bingham 391, tr 1	3	....
Dunlavey & Curtis, Curtis 1	4	....
D. W. Hoffman & Co., Hoffman 1	2	....
L. G. Schenfield, Schenfield 11	2	....
Holmes Oil Co., Henlund & Co. 1	3	....
Loop & Bell, Moffman Estate 1	2	....
Dana & Dana, Kinley 16	4	....
D. & R. Oil Co., Franchot 1	2	....
Penn Brook Oil Co., Franchot 1	3	....
M. C. Reidy, Reidy 2	4	....
J. W. Looker, Kennedy 3	4	....
R. O. Landers, Landers 17	2	....
Jones & McCord, Franchot 2	2	....
T. H. Kervin & Co., Kapp 9	2	....
Kapp 10	2	....
McKean County Trust, Bingham 386 tr 49	2	....
E. Daly, Buras & Co. 4	2	....
Jas. W. Looker, Willette Estate 1	4	....
Hazlewood Oil Co., Hazlewood 12	3	....
L. G. Dana, Dana 4	3	....
WASHINGTON COUNTY—		
Mfrs. Light & Heat Co., Day 5	425	....
GREENE COUNTY—		
Mfrs. Light & Heat Co., Lightner 1	*	....
Closser 12	¶3	....
Nat. Gas Co. of W. Va., Johnson 1	5	....
VENANGO COUNTY—		
J. E. Kerline, Schwab 7	2	....
H. B. Melat, Kellerman 27	2	....
BUTLER COUNTY—		
G. D. Carpenter, Carpenter 9	2	....
Veil-Lake Co., Mahood 3	2	....
J. A. Elliott & Co., Duncan Heirs 8	*	....

WEST VIRGINIA

GILMER COUNTY—		
C. M. Bennett & Co., Keister 2	¶2	....
Hope Cons. & Ref. Co., Hardman 5	5	....
Steer Creek Oil & Gas Co., Stump 1	¶1¼	....
L. T. Bickel, Hamilton 2	¶1½	....
Hope Nat. Gas Co., Lamb 7236	¶1¼	....
Tallhammer 5807	¶1½	....
ROANE COUNTY—		
United Fuel Gas Co., Shaffer & Co. 2574	¶1½	....
Brown, Swan & Co., 2543	¶1½	....
Hollywood Oil & Gas Co., White 1	¶1½	....
United Carbon Co., Conley 1	¶1½	....
LINCOLN COUNTY—		
Cecelia Oil & Gas Co., Croft Land Co. 1	¶½	....
Earl Cameron, Stone 3	¶¼	....
United Fuel Gas Co., Adkins 2557	¶½	....
Horse Creek Land Co., 1978	¶½	....
RITCHIE COUNTY—		
Hope Const. & Ref. Co., Wilson 1	*	....
H. Satterfield, Maxwell 1	*	....
Southern Oil Co., Lynch Heirs 2	*	....
CLAY COUNTY—		
Virginia Gasoline & Oil Co., Brown-Swan 21	10	....
South Penn Oil Co., Phillips 6	10	....

Company, Well and Location	Initial Production Bbls.	Depth
CALHOUN COUNTY—		
F. F. McIntosh, Morgan Heirs 2	¶1¼	....
Hope Const. & Ref. Co., Bennett 2	¶¼	....
MONONGALIA COUNTY—		
J. A. Phillips & Co., Lemley 1	¶2	....
Swastika Oil Co., Lemley 1	¶¼	....
TYLER COUNTY—		
American Oil Dev. Co., McCoy 1	¶2½	....
Alvy Oil & Gas Co., McIntyre 4	4	....
WETZEL COUNTY—		
Littleton Oil & Gas Co., Wade-Cain 1	50	....
DODDRIDGE COUNTY—		
Moses & Reed, Lyons 1	5	....
MARION COUNTY—		
J. J. Allen, Thorn 1	¶2¼	....
UPSHUR COUNTY—		
Cumberland-Allegany Gas Co., Gould Heirs 1	¶2	3957
MINGO COUNTY—		
Public Gas Corp., Marcum 6	¶6	1027
MARSHALL COUNTY—		
Hinerman, Reid & Co., Ernst 1	*	....
PLEASANTS COUNTY—		
Carter & Rinehart, Reynolds 2	*	....

KENTUCKY

DAVIESS COUNTY—		
Jetsen Oil Co., Hinton 3	60	....
Huff & Calderwood, Salmon 4	50	....
L. S. Clough & Co., Ivy 1	*	....
Ohio Oil Co., Marteniz 1	*	....
WAYNE COUNTY—		
W. O. Southern, Jr., Frost 1	*	....
Superior Oil Corp., Campbell 17	2	....
Brinegar 15	2	....
Hurst & Shearer, Coyle Heirs 5	8	....
BARREN COUNTY—		
Geo. L. Porter, Hickerson 4	10	....
FLOYD COUNTY—		
New Domain Oil & Gas Co., Purchase 1	¶2	....
OHIO COUNTY—		
Daly & Lowman, Ezell 6	100	....
Wood Oil Co., Ralph 6	40	465
Duke 8	30	469
Hupp & Duff, Trodgen 2	50	....

SOUTHEASTERN OHIO

JEFFERSON COUNTY—		
Henry C. Kellemire, Morra 5	2	....
Two Ridge Oil Co., Huscroft 1	*	....
Wm. B. Tipton & Co., Purley 1	*	....
WASHINGTON COUNTY—		
Zwingle Bros., Greenwold 2	*	....
Perry Smith & Co., Butler 1	*	....
Snodgrass & Co., Reynolds 1	*	....
MORGAN COUNTY—		
Henry Scheibe & Co., Bonar 2	3	....
J. H. McBride, Mills 1	¶¼	1556
NOBLE COUNTY—		
D. R. Greenless & Co., Coal Lands 7	2	....

CALIFORNIA

HUNTINGTON BEACH—		
Union Oil Co., Copeland 23	100	4200
INGLEWOOD—		
Shell Oil Co., Ridge 9	250	3145
Standard Oil Co., L. A. I. 15	150	2630
KERN FRONT—		
Chanslor-Canfield Midway Oil Co., K-F 23, 23-28-27	125	2280
LONG BEACH—		
Dabney-Johnston Oil Corp., Murcheson 7	1500	6820
E. L. Doheny, Nelson 1	1500	6317
Graham & Loftus, Banks 2	2900	7164
Ganco Oil Corp., Keaton 3	*	2565
James O'Donnell, Davis 1	*	6200
Max Pray, No. 3	50	3060
Shell Oil Co., Jones 11	300	7065
LAWNDALE—		
Pacific Western Oil Co., Howland 2	1200	5890
ROUND MOUNTAIN—		
Shell Oil Co., Freeman 3	350	1650
SANTA FE SPRINGS—		
California Eastern Oil Co., S. F. 1	150	4695
General Pet. Corp., S. F. 152-D	3000	5880
Shell Oil Co., No. 18	300	5825
Slusher B-1	2400	6520
Union Oil Co., Alexander 10	2400	6135

Company, Well and Location	Initial Production Bbls.	Depth
Universal Consolidated Oil Co., Blanchard 7	8200	6712
Blanchard 11	700	5780
Wilshire Oil Co., Eagle 2	4600	5802
VENTURA—		
Associated Oil Co., Lloyd 25	850	7505
Shell Oil Co., Edison 25	300	7055

ARKANSAS

UNION COUNTY—		
Rovenger Oil Corp., W. H. Perdue B-2, 9-17-14	*	3441

NORTH LOUISIANA

BIENVILLE PARISH—		
W. P. Wallace, State 1, 16-16-10	¶5	2495
BOSSIER PARISH—		
R. L. Crook, Larkin 1, 14-19-11	5	381
LA SALLE PARISH—		
H. L. Hunt, Urania 6, 2-9-1e	*	1281
OUACHITA PARISH—		
Peerless Carbon Co., Moore 4, 26-20-4e	¶3	2173
La Del Oil Properties, Inc., Fee 46, 6-19-5e	¶5	2189

SOUTH LOUISIANA

BAYOU DES GLAISE—		
Union Sulphur Co., Schwing 3	*	3710
BLACK BAYOU—		
Shell, Watkins 8	*	1100
EDGERLY—		
Green Oil Co., Moore 6, dd	50	2930
EVANGELINE—		
E. F. Simms Oil Co., E. Cockrell et al, No. 2	*	3835
HACKBERRY—		
Sun Oil Co., Vincent 1	100	3235
Federal Pet. Co., Kaough 3	60	3175
Rex Pet. Corp., Noble 1	600	3280
LOCKPORT—		
Vacuum-Gulf, Miller 20, dd	310	3745
I. R. Bordages 1	*	5840
SULPHUR—		
Union Sulphur Co., Fee 740	*	6275
Fee 741	1000	3125
THIBODAUX—		
Gulf, Stark 9	*	1400
Union Sulphur Co., Dibert, Stark & Brown 1	*	1530
Dibert, Stark & Brown 2	*	1775
VINTON—		
Marrs McLean, Gray 12	90	1875

TEXAS

TEXAS GULF COAST

BARBERS HILL—		
Yount-Lee Oil Co., Chambers Co., Agri. Assn. 2	1100	5329
Richardson 4	*	2285
Rexal Pet. Co., Cockburn 1	650	2100
BATSON—		
Ada Belle Oil Co., Paraffine 126	25	1160
BOLING—		
The Texas Co., Dippel B-1	115	3735
GOOSE CREEK—		
Gulf, Beaumont Pet. Co., State 15, wo	15	2030
Ashbel-Smith Co. 25, dd	170	3690
HULL—		
Republic Prod. Co., Dolbear 32, dd	*	3490
HUMBLE—		
Cullen & West Prod. Co., Morris 3, wo	4500	4838
PIERCE JUNCTION—		
Moody Corp., Whitehead B-4	1300	4420
Navarro Oil Co., Dooley 14	1200	4550
T. G. Shaw et al, Barron-Fitzsimmons 2	*	4910
Harvey H. Smith, Herman Est. 1	900	3670
RACCOON BEND—		
Humble, A. Grawunder C-1	60	3388
REFUGIO—		
Houston Oil Co., Wilson Heard 5	750	3692
SOUTH LIBERTY—		
Vacuum Oil Co., Trinity River 1	200	3530
SUGARLAND—		
Humble, Brazos Farms 2	1400	3611
Sugarland Industries 5	1500	3745

EAST TEXAS

CASS COUNTY—		
Davis & Pigg, Ed Lambert 1, Lambert sur	*	1952
PANOLA COUNTY—		
Adams & Walker, Adams 3, Ezekiel Jones sur	¶5	973

(Continued on page 96)

FRANKLIN VALVELESS OIL AND GAS ENGINES

SPEED

FLEXIBILITY

POWER

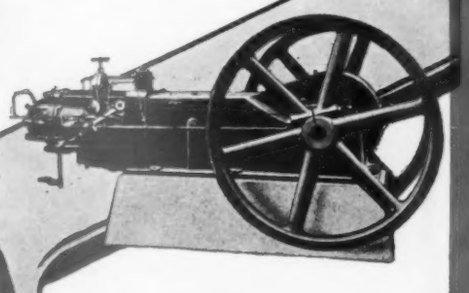
"Approximately 90% of Franklin's sales have come through repeat orders from satisfied users or from drillers who have watched these dependable economical engines on the job."

High drilling cost is a good excuse to change your power plant. Low cost of operation is a good reason for changing to the Franklin.

Franklin Valveless Engine Co.
Franklin, Pa.

New Franklin Valveless oil drilling engine. Type "OF" ample power, simplicity, easy to install. Easy to start. Low fuel cost.

Send for information.



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OIL WELL SUPPLY COMPANY

Branches in All Oil Fields

(Continued from page 94)

SOUTHWEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
SALT FLAT—		
Gulf, Carter 6	300	2670
J. J. Davis 4	300	2701
Wright 3	350	2671
Wright 5	325	2676
Shell, Carter B-1	300	2678
W. L. Smith 1	325	2722
F. Tiller 8	935	2695
M. K. Towne, Hickman 5	125	2735
DUVAL COUNTY—		
Humble, Kohler 19, sur 424	¶35	1836
ZAPATA COUNTY—		
Wm. F. Morgan, Hinnant 1, Jennings	80	1500
O. W. Killam, Cuellar 12, Jennings	100	1480
JIM HOGG COUNTY—		
A. L. Kitselman, Holbein 1, Blk. 9, share 3, sur 3, Las Animas Grant	*	2240

TEXAS PANHANDLE

CARSON COUNTY—		
Prairie O. & G. Co., McConnell-Marland 3,	175	3169
GRAY COUNTY—		
Malone et al, W. H. Taylor 1	*	3235
HUTCHINSON COUNTY—		
Phillips Pet. Co., Jasper-Pat 2	10	3122
J. A. Whittenburg 16 (Sec. 63)	140	2801
WHEELER COUNTY—		
Clark et al, J. D. Purcell 4	¶20	1840
Gibson Oil Corp., W. E. Bentley 6	130	2367
Hartel et al, L. C. Burcham 1	¶35	1940
Wisch Kamper et al, R. Adamson 1	¶25	1700
Mudge Oil Co., C. Hicks 1	¶46	1905
L. W. Rook et al, M. Nelson 1	¶3	2050
The Texas Co., G. Gordan 1	¶33	1897

CENTRAL WEST TEXAS

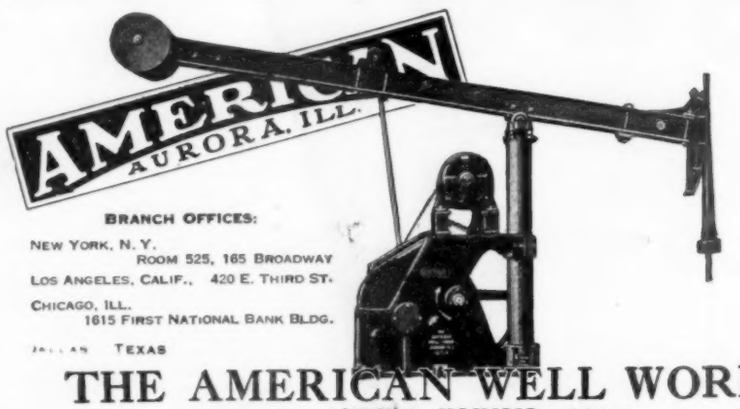
BROWN COUNTY—		
Love & Michael, Graham 2	*	1250
Pitts et al, Harrell 1	*	1653
CALLAHAN COUNTY—		
L. G. Bradstreet & Holden, Cavanaugh 1	125	1680
Moutray Oil Co., Finley 1-C	*	1015
Hatchett 1 (Sec. 20)	*	1388
F. E. Shaheen et al, Tatum 2	*	815
COLEMAN COUNTY—		
Guardian Oil Co., Sharp 1	¶34	1140
Urban & Atlantic Oil Prod. Co., Gates 1	¶4	1893
EASTLAND COUNTY—		
Haynes et al, Riddle 1	*	4125
Rex Outlaw et al, Terrill 1	*	1555
ERATH COUNTY—		
Goodwin et al, Liberty School Lot 1	*	3334
SAN SABA COUNTY—		
C. S. Wilmott et al, Moore 1	*	3082
SHACKELFORD COUNTY—		
Hughes et al, Huber 1	*	905
Ohio-Texas Oil Co., Matthews 1-C	380	1110
Phillips & Lampkin, Davis 1	*	840
Roeser-Pendleton & Marland, Cook 88-A, (Sec. 60)	25	1217
Cook 38-A, (Sec. 61)	30	1333
Cook 40-A, (Sec. 61)	25	1340
Cook 11-A, (Sec. 83)	25	1376
Sedgwick O. & G. Co., Dennis 18	*	1288
Harry Shulman et al, Matthews 1	*	1160
Skelly Oil Co., Matthews 4-S	*	1265
Tannehill et al, Hill 1		1327
Texas Consolidated Oil Co., Isbell 6-B	*	1210
STEPHENS COUNTY—		
Lone Star Gas Co., Elliott 2	¶7½	2191
Mid-Texas Oil Co., Cunningham 8	70	3159
Swensondale Oil Corp., Swenson 34	¶¼-10	2520
Zingery et al, Cooper 1	20	2192

NORTH TEXAS

ARCHER COUNTY—		
Lester Burns et al, Miller 1	*	1555
Fain-McGaha Oil Corp., Wilson 1-E	*	1600
F. H. Gohlke et al, Wilson 1-B	55	1568
P. J. Lea & Daniels, Williams 5	10	571
Thornton Lomax et al, McCrory 1	*	1543
C. B. Long and The Texas Co., K. & K. 1	160	1817
Madden & Clark, Anderscn 1	*	1358
Moran Drlg. Co., Bloodworth 1	60	1216
Palmer & Burch, Wilson 1	*	1600
Pandem Oil Corp., Wallace 1	65	1779
Prairie O. & G. Co., Richardson 26-B	55	1288
Richardson 1, Lot No. 12	10	1190
Rathke Oil Co., Parrish 1	25	1601
Shappell Oil Co., Jackson 44	30	1798
Shell Pet. Corp., Abercrombie-Tayler 2,	15	1391
COOKE COUNTY—		
Kewanee O. & G. Co., Timmis 9-A	100	1258
Timmis 10-A	480	1205
Shell Pet. Corp., H. L. Dennis 4	275	1242
H. L. Dennis 5	500	1230
The Texas Co., H. L. Dennis 6	600	1221
H. L. Dennis 7	500	1239
BURKBURNETT—		
R. R. Clark et al, Langford 4-A	25	1926
Pink Hammond et al, Overall 1	*	1951
ELECTRA—		
Harry Hines et al, Burnett 1-A	85	1400
Roy F. Right et al, Jennings 2-A	15	1616
JACK COUNTY—		
Hartt Pet. Co., Mask 1	*	2506
Lindsey Drlg. Co. et al, Knox 1	*	3014
K-M-A & IOWA PARK—		
Comac Drlg. Co., Morgan 1	*	800
GMC Oil Co., Crudup 1-B	*	800
Hill & Blair, Fassett-Tuttle 1	*	1927
Petroleum Investment Co., Fisher 1-B	20	700
Fisher 2-B	15	699
Fisher 3-B	10	700
Fisher 4-B	5	322
Fisher 5-B	*	326
Fisher 6-B	10	689
Fisher 7-B	*	691
Fisher 8-B	*	703
Producers Dev. Co., Allen-Kemp 1-S	9	244
THROCKMORTON COUNTY—		
Reiter-Foster Oil Corp., Matthews 1	*	1304
WILBARGER COUNTY—		
Phillips Pet. Co., Waggoner-Wag 1	*	2749
YOUNG COUNTY—		
L. G. Bradstreet & Co., Snider 7	10	572
Bratcher et al, Edwards 5	20	495
Callender et al, Rushing 1	*	900
Hedrick-Camp Drlg. Co., Jones 1	*	1005
May-Carey Drlg. Co., Gillmore 1	*	580
Prideaux 4	10	578
Nix & Pennell, Hoak 1	*	596
Pennell et al, Calvin 3	40	575
Petroleum Prod. Co. and Madden, Dietrich 1	*	1221
Rathke Oil Co., Bishop 5	*	1020

WEST TEXAS

HOWARD COUNTY—		
Merrick & Bristow, Hooks 10	80	1950
JONES COUNTY—		
Gulf Prod. Co., Brown 1	*	5280
Roeser-Pendleton, Inc., Grayson 4-A	95	2544
PECOS COUNTY—		
Gulf Prod. Co., M. A. Smith 14	60	1550
Mid-Kansas-Transcontinental, M. A. Smith 5	225	1435
Marland Prod. Co., Yates 11-A (Shallow)	250	31
Yates 12-A (Shallow)	*	53
Yates 13-A (Shallow)	100	40
Yates 14-A (Shallow)	225	32
WINKLER COUNTY—		
Gulf Prod. Co., Scarborough 1	90	3350
Skelly Oil Co., Fred Leck 1	1750	2785
Southern Crude and R. A. Westbrook, Hendrick 7-T-T-88	45	3122



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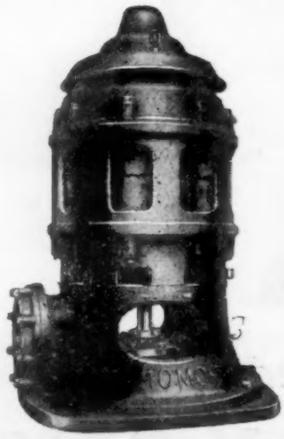
Exclusive Pomona Pump Features
That Guarantee Lower Water Costs

Water lubrication.
Sand-proof bearings.
Semi-open impellers.
Perfect hydraulic balance.
Sand-locking impossible.
Water capacity can be varied.
Non-rusting shaft in bowls.



Shaft will not whip or gyrate.
Shaft retains correct alignment.
Highest efficiency over wide operating range.
Special bearings in heads.
Convertible heads, from belt to direct drive and vice versa.

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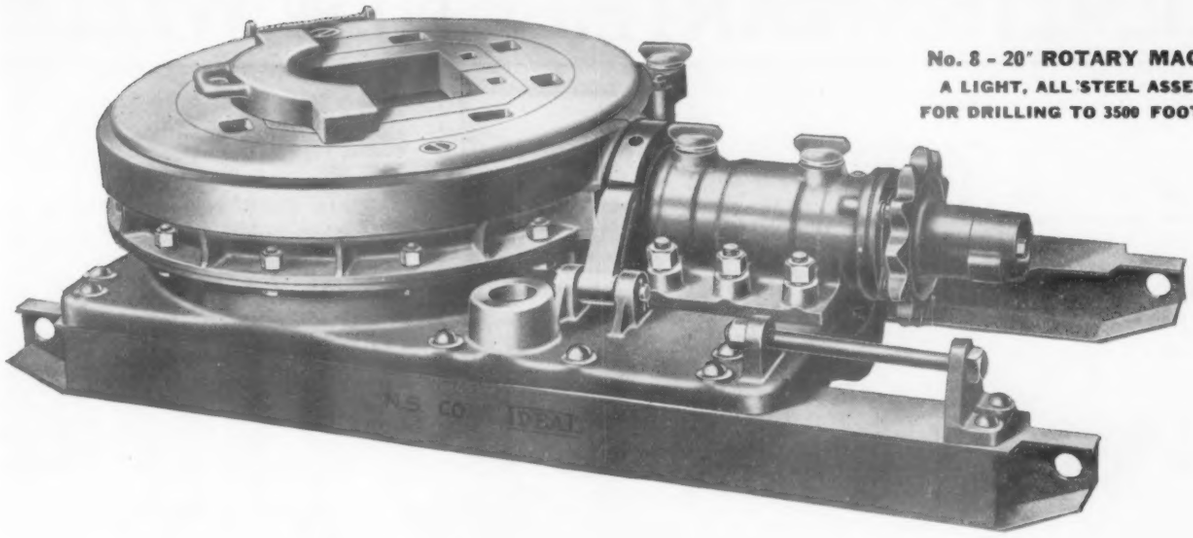

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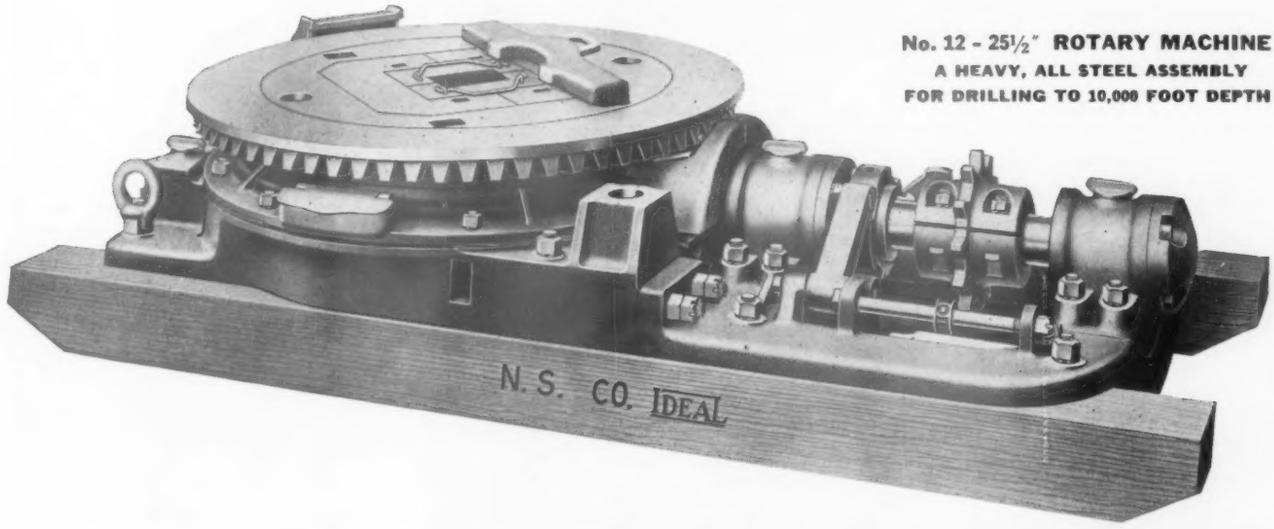
A LIGHT, ALL STEEL ASSEMBLY
FOR DRILLING TO 3500 FOOT DEPTH



No. 12 - 25½" ROTARY MACHINE
A HEAVY, ALL STEEL ASSEMBLY
FOR DRILLING TO 10,000 FOOT DEPTH

IDEAL ROTARIES

THE NATIONAL SUPPLY COMPANIES

Say you saw it in The OIL WEEKLY

PERMITS GRANTED FOR NEW WELLS

WEEKLY COMPARISON OF NEW WELLS

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

	Week ending March 30	Previous week	Total this month	Total this year	This week Last Yr.	This month 1928	1928 year total
Arkansas	..	3	14	37	5	21	331
California	28	21	129	367	11	84	1,207
Louisiana	13	12	78	188	17	89	680
Kansas	10	10	81	230	13	99	1,032
Oklahoma	43	60	264	751	73	346	3,744
Texas	141	156	706	1,927	152	829	8,297
Total	235	262	1,273	3,501	271	1,468	15,291

LOUISIANA

CADDO PARISH—W. D. Chew, Shreveport, Caddo Levee Board 34-21n-16w, 2490 ft w and 1470 ft s of ne c.

CAMERON PARISH—Rex Pet. Corp., Vinton, Noble 2, 28-12s-10w, 50 ft s and 150 ft s of nw c se sw. Shell Pet. Corp., Houston, Texas, Watkins 9, 18-12s-12w, 999 ft w and 1243 ft s of ne c.

DE SOTO PARISH—P. J. Becker, Tr., Shreveport, Tull 1, 23-12n-15w, 100 ft n and 100 ft w of se cor of ne¼ of ne¼.

LA SALLE PARISH—Arkansas Fuel Oil Co., Shreveport, Urania Lbr. Co. B-11, 17-10n-2e, 200 ft s and 350 ft e of nw c sw nw.

LA FOURCHE PARISH — Union Sulphur Co., Sulphur, Dibert, Stark & Brown Cypress Co. 4, 70-15s-15e, 1320 ft s and 2590 ft e of nw c.

MOREHOUSE PARISH—Southern Carbon Co., Monroe, Griffin 2, 10-20n-4e, 726 ft s of center.

OUACHITA PARISH—La Del Oil Properties, Monroe, Fee No. 47, 6 -19n-5e, 1320 ft s and 660 ft w of ne c. Southern Carbon Co., Monroe, Fairbanks 12, 34-20n-4e, 4434 ft n and 705 ft e of sw c se.

RICHLAND PARISH—W. C. Feazel, Monroe, Pardue 2, 6-15n-6e, 2551 ft s and 4485 ft w of ne c.

ST. TAMMANY PARISH—St. Tammany Pet. Corp., New Orleans, Fritchie et al 2, 35-8s-14e, 250 ft s and 350 ft e of nw c.

TERREBONNE PARISH — Southern Gas Co., Inc., Houma, Waterproof 1, 4-17s-16e, s 5059 ft w 4487 ft from ne c.

WEBSTER PARISH — Louisiana Oil Ref. Corp., Shreveport, Nelson 3, 28-21n-10w, 660 ft s and 530 ft e of nw c sw ne.

KANSAS

ELLIS COUNTY—Davis, Hazlett et al, Weiland 2, nw ne ne, 1-13-16w.

HARVEY COUNTY — Independent & Reserve Oil Co., Moulds 1, c ne, 7-24-1w.

OSBORNE COUNTY—Trees Oil Co., Paynter 1, ne se se, 22-6s-15w.

RUSSELL COUNTY — Texas, Weisner 1, sw, 31-12-15w.

SEDGWICK COUNTY—Bu Vi Bar et al, Goodrich 5, ne sw, 6-26-1e; Bu Vi Bar et al, Goodrich 4, ne se ne sw, 6-26-1e; Bu Vi Bar et al, Bright "A" 3, nw se nw, 6-26-1e; Bu Vi Bar et al, Bright "A" 2, ne sw se nw,6-26-1e; Barnsdall, Kuske 1, ne se, 24-25-1e; Frank Wahn et al, Wilson 1, ne nw se, 9-26-1w.

OKLAHOMA

CARTER COUNTY — Magnolia, Hightower 1, sw ne, 30-1s-3w.

COAL COUNTY—E. W. Whitney, Miller 1, se ne, 10-2n-8e.

COTTON COUNTY—Egger & Wallace, Williams 1, ne sw sw, 25-1s-10w.

CREEK COUNTY—Texas, Posey 1, se nw se, 11-15-10e; Carter, Durant 2, (owd) nw ne ne, 18-16-19e; Summitt Drlg. Co. et al, Long 2, ne sw se, 25-16-11e; Blackwell O. & G. Tiger 11, ne se sw, 17-17-7e; Magnolia, Scott 1, (owd) nw sw se, 9-18-7e; Beal and Plumb, Walker 1a, nw se nw, 26-18-9e; Smith & Coffee, Maloney 2, cwl nw nw, 19-18-11e; H. U. Bartlett et al, Bartlett "B" 3, ne nw ne, 18-19-9e; William Sherry et al, Holsey 2, nw ne se, 28-19-9e.

DEWEY COUNTY—J. V. Bailey et al, No. 1, c se ne, 18-19-18w.

HUGHES COUNTY—Independent & Kingwood, Scott 1, sw se se, 6-8-9e.

JEFFERSON COUNTY—Humble, Seay 2, ne nw nw ne, 3-7s-5w.

KAY COUNTY — Harris & Haun, School Land 1, c n½ ne, 36-28-1w.

MUSKOGEE COUNTY—A. Tillman et al, Callahan 3a, sw ne se, 2-14-18e.

OSAGE COUNTY—H. H. Mundy et al No. 1, sw ne, 4-20-9e; L. G. Stanley No. 7, sw ne se, 36-22-8e; Red Bank Oil Co. No. 1, nw ne nw, 29-23-8e, (owd); Nath Jones et al No. 1, sw se, 28-23-9e; Kay County Gas Co. No. 6 "B," sw se nw, 22-24-7e; McCune & Wormser No. 12, nw sw sw nw, 15-24-8e.

PAYNE COUNTY—Mulberry Oil Co., Nims 1, nw ne, 5-17-5e.

POTTAWATOMIE COUNTY—Mid-Continent, Rogers 4, nw se sw, 5-9-5e; Slick, Smith 4, sw nw se, 29-7-5e; Panther Oil Co., Townsite 1, (owd), sw, 14-7-4e.

SEMINOLE COUNTY—Sinclair & Marland, Warrior 2, se nw nw, 17-9-7e; Continental, Johnson 1, se nw, 18-9-7e; Carter, Slick 1, ne nw sw, 11-9-6e; Magnolia, Varnum 1, ne nw ne, 7-9-6e; Gypsy, Mission 9, ne se, 6-8-6e; Carter, Rogers 1, nw se, 2-8-5e; Empire, Cluck 9, sw se ne, 11-8-5e; Empire, Cluck 10, nw ne se, 11-8-5e; Mid-Continent, Smith 5, nw sw ne, 5-7-7e; Carter, Factor 3, ne se nw, 26-7-6e; Shaffer, No. 1, ne, 33-7-6e; Continental, Milsey 1, ne nw se, 27-7-6e.

STEPHENS COUNTY—Pace et al, Petty 1, sw nw sw nw, 17-2s-7w; Pace et al, Bristowe 1, nw sw, 18-2s-7w; Shaner et al, Brymer 3, cel sw ne, 31-1n-8w.

TULSA COUNTY—Mitchell County Gas Co., Barnett 1, se sw ne se, 1-18-12e.

TEXAS

Operator, Lease or Owner, Acreage, Well, Survey, Distance to lease lines or well.

ARCHER COUNTY—Merts & Beaven, Dallas, W. J. McMurty, 80, 1, B 12, McGalen sur, 150 ft from s and w lines. Kemrow Co., Electra, J. W. Campbell, 65, 3, DCSL 33 sur, 300 ft e of No. 1. Lea & Daniels, Wichita Falls, Williams 4, 5, J. Hand sur, 150 ft from s and w lines. Petroleum Prod. Co., Wichita Falls, A. M. Kunkel, 40, 1B, S 3, BB&C sur, 838 ft from e and 150 ft from s line. Steed & Gaus, Wichita Falls, L. A. Snider, 400, 13 R. Wilson sur, 150 ft from n and w lines. United Prod. Co., Wichita Falls, W. R. Brown, 100, 1, No. 110 Wm. Sellers sur, 150 ft from s and e lines. Shell Pet. Corp., Wichita Falls, C. L. Abercrombie, 19, C3, S 41, J. W. Harris sur, 150 ft from n and 750 ft from e line. Shappell Oil Co., Wichita Falls, J. L. Jackson, 243, 44, No. 3 DCSL sur, 1050 ft from e and 830 ft from s line. A. T. Wolfe & Son, Wichita Falls, F. M. Gates, 29, 1, R. Neil sur, 150 ft from s and w lines. Palmer & Burch, Inc., Wichita Falls, L. F. Wilson, 40, 1, B 100, Amer. Trib. sur, 150 ft from s and e lines. Texas Co., Wichita Falls, J. R. Parkey, 160, 3, S 1, Amer. Trub. sur, 1830 ft from n and 1620 ft from e line.

AUSTIN COUNTY—Humble, Houston, W. Kaleweski 1, A. Ives sur, 500 ft from se and ne lines; E. B. Wilson 4, W. C. White sur, 150 ft from se and ne lines; O. Wilson 2, Wm. Harvey sur, 712 ft from w and 427 ft from s line.

ATASCOSA COUNTY — W. R. Hamilton, San Antonio, R. T. Hughes, 200, 16, No. 518 J. Sharp sur, West central part of lease.

BROWN COUNTY -- J. B. Davis, Dallas, W. D. McCulley, 29, 1, No. 53 J. S. Thom sur, 200 ft from n and w lines. P. H. Burtner et al, Fort Worth, R. L. Wise, 80, 1, G. Montez sur, 2000 ft from w and 150 ft from s line. L. E. Sheldon, Jr., Brownwood, J. P. Eiland, 151, 1, B 1, E. T. Ry. sur, 450 ft from n and 750 ft from w lines. Love & Michel, Cisco, R. N. Graham, 90, 2, J. Brown sur, 680 ft from s and 150 ft from e line. E. W. McCreary, Tulsa, Okla., Bradford, 60, 14, No. 50 D. J. Jones sur, sw corner.

BASTROP COUNTY—Atlantic, Dallas, A. Yost, 46, 5, A. Garcia sur, 330 ft e of No. 4.

CALLAHAN COUNTY—H. D. Barnhart et al, Cisco, J. R. McFarlane, 80, 1, No. 340 J. Gillespie sur, 150 ft from s an de lines. Gibson & Johnson, Abilene, C. B. Snyder, 40, 2B, S 139, BBB&C sur, 450 ft from n and 150 ft from e line. Graham & Lash, Cisco, E. J. Eubanks, 60, 11, S 4, D&D Asy. sur, 150 ft from n and w lines. Drew Beams, Okmulgee, Okla., C. B. Snyder, 160, 1, S 140, BBB&C sur, 150 ft from s and w lines. Humphreys Bros., Inc., Brownwood, E. Gary, 80, 1, S 40, D&D Asy. sur, 450 ft from e and 1500 ft from s lines; 2, 300 ft e of No. 1. F. B. Spince, Abilene, J. Cauttle, 40, 1, 3196 TE&L sur, 320 ft from n and 660 ft from e line.

COLEMAN COUNTY — Pratt & Holiday, San Antonio, W. J. Long, 60, 1, S 58, HT&B sur, 600 ft from n and e lines. H. E. Jones et al, Brownwood, L. Vaughn, 160, 1, B 79, B&S sur, 750 ft from n and w lines. Hunter & Baker, Brownwood, W. L. Baugh, 54, 1, No. 95 R. Perry sur, 150 ft from s and e lines. Jno. R. Foster, Coleman, Overall, 50, 1, S 71, GH&H sur, 330 ft from n and 600 ft from e line.

CALDWELL COUNTY—Cranfill & Reynolds, Cisco, J. Northcutt, 50, 2, S. Shupe sur, 300 ft e of No. 1. Alexander & Smith Oil Co., Houston, J. A. Cardwell, 31, 1, J. P Bell sur, 150 ft from s and w lines. J. W. Gomillion 50, 1, G. Pace sur, 150 ft from n and 475 ft from w line. Luling O&G Co., Luling, G. R. Carter, 124, 1, G. Hinds sur, 150 ft from n and w lines. Roxana Pet. Corp., Houston, G. W. New, 40, 4, J. Hinds sur, 150 ft fro mn and e lines.

CHAMBERS COUNTY—Rexal Pet. Corp., Houston, T. H. McLean, 3, 1, H. Griffith sur, 50 ft from w and 33 ft from n line. Humphreys Corp., Houston, A. J. Tarbutton, 2, 1, H. Griffith sur, ne corner. Kirby Pet. Corp., 72, A7, H. Griffith sur, 680 ft from w and 75 ft from s line. Yount-Lee Oil Co., Beaumont, Richardson 4, Wm. Bloodgood sur, 190 ft from e and 218 ft from n line.

CARSON COUNTY—Empire G. & F. Co., Wichita Falls, Armstrong, 160, 1, S 31, B 2, T&P Ry. sur, 990 ft from n and w lines.

COOKE COUNTY — Kewanee O&G Co., Tulsa, Lanier B, 104, 4, E. T. Ry. sur, east central; Lanier A, 80, 12, E. T. Ry. sur, 438 ft from w and 182 ft fro mn line; 13, 334 ft w of No. 9; 14, 325 ft w of No. 10.

COKE COUNTY — R. E. McCamey, Fort Worth, J. B. McCutcheon ,280, 1, No. 4 C&M sur, 2300 ft ne and 785 ft from se line.

DUVAL COUNTY—Humble, Houston, Kohler, 21, No. 396 sur, 545 ft from e and 495 ft from n line. Simms Oil Co., Dallas, J. T. Dinn, 640, 4, No. 666 sur, 150 ft from e and 660 ft from s line.

ERATH COUNTY—T. P. Coal & Oil Co., Ranger, J. E. Smith, 50, 1, T. Stubblefield sur, 330 ft from n and w lines.

FISHER COUNTY—Culbertson Bros., Fort

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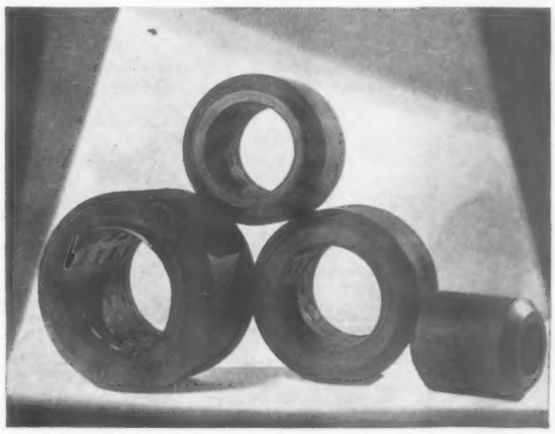

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Worth, A. J. Griffin, 80, 1, BCSL sur, 465 ft from w and 549 ft from s line.

FORT BEND COUNTY—Humble, Houston, Brazos Farms 6, Wm. Little sur, 300 ft w of Nelson No. 1; Deatherage B, 1, E. Alcorn sur, 150 ft from s and e lines.

GRAY COUNTY—Alco Royalty Corp., Tulsa, Okla., B. F. Finley, 159, 1, S 17, B S, B. E. Chaney sur, 330 ft from s and w lines. Phillips Pet. Corp., Bartlesville, Okla., J. H. Palmer, 83, 1, S 31, B B2, H&G Nsur, 330 ft from s and e lines.

GUADALUPE COUNTY—Mid-Kansas O&G Co., Tulsa, Okla., C. Lehmann, 195, 1, J. B. Cowan sur, 900 ft from ne and 150 ft from se line.

HUTCHINSON COUNTY — Phillips Pet. Corp., Bartlesville, Okla., J. Florence, 60, 5, M. Whitley sur, 303 ft from w and 400 ft from s line; P. Whittenburg, 40, 4, M. Whitley sur, 330 ft from n and e lines; J. Florence, 50, 6, M. Whitley sur, 330 ft from n and w lines.

HARRIS COUNTY—A. & P. Prod. Co., Houston, K. F. Whitehead, 28, 5, S 51, B 9, J. Hamilton sur, 175 ft s of No. 2.

HOWARD COUNTY—Hyer & Yates, Fort Worth, H. R. Clay, 120, 4, S 155, B 29, W&NW sur, 330 ft from e and 990 ft from n line.

HILL COUNTY—J. A. Harper, Austin, J. T. Jones, 61, 1, A. C. Graves sur, 750 ft from n and 600 ft from w line.

HARRISON COUNTY—H. D. Mac Kitchie, Marshall, E. W. Dean, 100, 1, J. W. Croft sur, 600 ft from n and 650 ft from w line. Nick Barbare, Waskom, J. W. Furrh, 6, 1, J. Short sur.

HARDIN COUNTY — Ada Belle Oil Co., Batson, Paraffine, 2, 127, J. Knight sur, 127 ft from w and 25 ft from s line.

IRION COUNTY — Fuhrman Pet. Corp., Dallas, J. D. Sugg, 160, 1, S 3029, B 24, H&TC sur, 1320 ft from s and w lines.

JACK COUNTY — L. C. Harper, Wichita Falls, J. M. Box, 60, 1, I. Hughson sur, 330 ft from s and e lines.

JEFFERSON COUNTY—Shell Pet. Corp., Houston, C. T. Heisig, 704, 1, S 86, T&NO Ry. sur, 1293 ft from w and 4300 ft from s line.

JONES COUNTY—Humble, Wichita Falls, C. A. Bickley, 280, 2, S 50, B 18, T&P sur, 330 ft from n and 2238 ft from w line. Texas Co., Houston, W. E. Camp, 19, 5, 3, S 13, B 19, T&P Ry. sur, 662 ft nw of No. 2.

LIBERTY COUNTY—Empire G & F. Co., Daisetta, G. Barngrover, 35, 21, J. Devore sur, 280 ft from e and 335 ft from s line. Humble, Houston, Rivie e B, 3, M. G. White sur, 430 ft from w and 50 ft from s line; 4, 300 ft from e and 50 ft from s line. J. W. O'Brien, Houston, Baldwin Est., 41, 1, Duncan sur, se corner. Sun Oil Co., Beaumont, Kovalcik, 100, 2, S 31, GC&SF sur, 400 ft from n and e lines.

MOORE COUNTY—Barnsdall Oil Co., Tulsa, Okla., Harrison 1, S 5, B M2, W. G. Moore sur, 330 ft from n and w lines.

MONTAGUE COUNTY — P. B. Wohnlich, Fort Worth, F. D. Hutcheson, 120, 1, 2829 TE&L sur, 300 ft from n and e lines.

MITCHELL COUNTY — Simms Oil Co., Dallas, Ellwood, 160, 2, S 29, B 18, S. P. Ry. sur, 660 ft from n and 1000 ft from e line.

MILAM COUNTY—Groneman Bros., Rockdale, H. Dornheifer, 63, 1, S. C. Robertson sur, 150 ft from n and w lines.

PALO PINTO COUNTY—Ashe Synd., Fort Worth, M. J. Hart, 80, 1, S 29, B 3, T&P Ry. sur, 330 ft from n and w lines.

REAGAN COUNTY—Skelly Oil Co., Tulsa, Okla., H. S. Grayson 3, S 33, B 8, Univ. Lands sur, 330 ft from n and w lines.

SHACKELFORD COUNTY — T. G. Shaw, Fort Worth, J. Rice, 535, 27, S 20, Bayland Asy. sur, 300 ft se of No. 14. Scott & Walker, Albany, L. C. Huskey, 380, 11, 568 TE&L sur, 300 ft w of No. 10. C. B. Taylor et al, Abilene, M. J. Leach, 80, 2, S 24, LAL sur, 150 ft from n and 750 ft from w line. Roeser & Pendleton, Inc., & Phillips Pet. Corp., Bartlesville, Okla., B. S. Walker, 320, 1, 386 TE&L sur, 1085 ft from ne and 1705 ft from se line. Texas Consolidated Pet. Corp., Breckenridge, J. F. Dyer, 80, 2, S 83, B 12, T&P sur, 150 ft from s and e lines; I. N. Jackson, 160, 1, S 95, B 12, T&P sur, 150 ft from n and e lines; J. F. Dyer, 80, 1, S 60, B 11, T&P Ry. sur, 150 ft from s and e lines. J. P. Harris, Albany, B. H. Ezell, 80, 1, S 3, LAL sur, 150 ft from e and 450 ft from n line.

STEPHENS COUNTY—Lone Star Gas Co., Dallas, R. Elliott 339, 3, S55, B 7, T&P Ry. 700 ft w of center of e line. Amerada Pet. Corp., Fort Worth, A. Dickie, 800, 1, D. Waggoner sur, 2500 ft from n and 150 ft from w line. Mesa Prod. Co., Breckenridge, T. M. Corbett 240, 1, 1094 TE&L sur, 330 ft from s and w lines. Ashe Synd., Fort Worth, M. J. Hart, 40, 12, S 42, B 4, T&P sur, 260 ft from n and 330 ft from e line.

VICTORIA COUNTY — Humble, Houston, G. Knape 1, S 6, IRR Co. sur.

VAN ZANDT COUNTY—Pure Oil Co., Fort Worth, N. A. Henderson, 123, 1, W. H. Hazlewood sur, 150 ft from s and w lines.

WICHITA COUNTY—C. W. Eaton et al, Electra, Kelly, 60, 1, No. 3 sur, 1895 ft from n and 150 ft from e line. W. H. Hammon, Wichita Falls, S. W. Wigley, 43, 1, P. Castleman sur, 450 ft from w and 150 ft from n line. Panhandle Ref. Co., Wichita Falls, T. L. Burnett, 80, A1, S 6, G. P. Meade sur, 150 ft from s and w lines. Petroleum Inv. Co., Wichita Falls, J. A. Fisher B 40, 9, S 24, B 2, L. M. Collins sur, 250 ft from w and 150 ft from s line. C. R. Schuster, Wichita Falls, B. F. Dutton, 40, 1, S 18, B 4, DCSL sur, 300 ft from n and e lines. W. C. Forbess, Fort Worth, M. Maywood, 148, 1, B 195, Wag. Col. sur, 293 ft from ec and 200 ft from s line. R. J. Brown, Wichita Falls, J. A. McFall, 89, 1, DL&C sur, 150 ft from e and 1050 ft from n line. J. H. S. Bonner et al, Wichita Falls, Cole, 148, 26, J. McCool sur, 300 ft n of No. 25. Hi Land Oil Co., Wichita Falls, J. F. Boyd, 40, 2, M 12, J. T. Lewis sur, 150 ft from n and e lines. Humble, Wichita Falls, Taylor, 110, 17, B 81, WVFL sur, 300 ft w of No. 12. L. G. Bradstreet Co., Wichita Falls, W. T. Waggoner D, 160, 1, A. Gibson sur, 150 ft s of center of n line. Underwood Drilling Co., Wichita Falls, W. M. Scott, 480, 1, S 1, CT Ry. sur, 1600 ft from e and 2000 fet from s line. Hill & Blair, Wichita Falls, Fassett-Tuttle, 148, 1, CT Ry. sur, 1500 ft from n and 150 ft from e line. W. H. Hammon, Wichita Falls, S. H. McCarty E, 17, 2, W .R. Eaves sur, 150 ft from n and e lines. Staley, Wynne & Co., Wichita Falls, Kemp & Kempner, 26, 15, B 82, WVFL sur, 300 ft w of No. 13. C. P. Sheldon, Electra, C. Whittenbach, 80, 1, Waggoner Col. sur, 150 ft from n and w lines. D. Proctor et al, Wichita Falls, W. F. Hamilton, 106, 1, J. T. Lewis sur, 275 ft from w and 150 ft from s line. Harry Hines, Wichita Falls, T. L. Burnett, 25, A2, G. P. Meade sur, 150 ft from s and w lines. L. L. Donnell, Electra, J. M. Honaker, 20, 1, J. Cole sur, 150 ft from s and w lines.

WILBARGER COUNTY—Empire G&F Co., Wichita Falls, W. T. Waggoner, 160, 7B, S 32, B4, H&TC sur, 924 ft from s and 198 ft from w line; W. T. Waggoner, 160, 1C, S 24, B 4, H&TC sur, 205 ft from s and e lines. Fain-McGaha Oil Corp., Wichita Falls, W. T. Waggoner, W 100, 4, S 32, B 4, H&TC sur, 1034 ft from e and 150 ft from n line. J. E. Dunaway et al, Wichita Falls, W. T. Waggoner B. 80, 1, S 25, B 4, H&TC sur, 150 ft from n and 200 ft from e line. Staley, Wynne & Co., Wichita Falls, Waggoner, 40, 6, S 32, B 4, H&TC sur, 205 ft from n and 200 ft from w line. Easter Oil Corp., Wichita Falls, W. T. Waggoner, 80, 2, S 25, B 4, H&TC sur, 455 ft se of No. 2. Melat Oil Co., Vernon, W. T. Waggoner, 210, A2, S 10, B 4, H&TC sur, 150 ft from n and e lines. L. G. Bradstreet & Co., Wichita Falls, W. T. Waggoner 94, 1, S 31, B 4, H&TC sur, 1050 ft from e and 150 ft from s line. Staley, Wynne & Co., Wichita Falls, W. T. Waggoner 75, 1, S 19, BS&F sur, 450 ft from n and 150 ft from e line.

WEBB COUNTY—O. W. Killam, Laredo, A. M. Bruni, 40, 4, B 5, M. Arispe sur, 1576 ft from sw and 942 ft from se line; A. M. Bruni, 200, 7, B 3, M. Arispe sur, 1220 ft from ne and 555 ft from se line. Laredo Oil Co., Laredo, Texas, O. W. Killam, 80, 14, No. 457 sur, 350 ft from k and 475 ft from s line.

WILLIAMSON COUNTY—S. W. Graham, Coupland, C. W. Pluger 1, 131 ft from n and 375 ft from w line.

WINKLER COUNTY — Dixie & Southern Crude Pur. Co., Shreveport, La., I. Hendrick, 240, N6, S 28, B 26, School sur, 1320 ft se of No. 28; N7, 1320 ft nw of No. 6.

WHEELER COUNTY—Lone Star Gas Co., Dallas, R. W. Griswold, 80, 1, S 1, B 24, H&GN sur, 330 ft from n and e lines.

WHARTON COUNTY — Gulf Prod. Co., Houston, G. McCarson, 80, 13, S. F. Austin sur, se of No. 10.

WARD COUNTY—J H L Oil Co., Midland, Hayzlett, 80, 1, S 17, B 5, H&TC sur, 150 ft from n and w lines; 2, 220 ft from n and e lines.

YOUNG COUNTY—Robertson Drilling Co., Fort Worth, Gilmore, 62, 3, B 14, YCSL sur, 450 ft from n and 720 ft from w line. Pitzer & West, Breckenridge, L. J. Bryan, 30, 1, N. Lynch sur. C. A. Pennell, Loving, R. J. Calvin, 25, 3, A. Rohus sur, 300 ft s of No. 2. W. R. Stafford et al, Graham, G. T. Melton, 28, 1, S. Tynes sur, 150 ft from n and e lines. R. C. Parker, Graham, L. Barrett 40, 1, E. Sargent sur, 750 ft from s and 150 ft from w line. J. B. Peacock, Wichita Falls, W. W. Gregg, 60, 1, YCSL sur, 150 ft from s and w lines. Maycamp Drilling Co., Wichita Falls, H. O. Pridaux, 106, 4, A. Rohus sur, 300 ft w of No. 1. Transcontinental Oil Co., Fort Worth, W. A. Corbett, 640, 1, R. Campbell sur, 150 ft from n and 660 ft from w lines.

CALIFORNIA

COYOTE HILLS—Standard Oil Co., Emery 44, 24-3-11; Emery 45, 13-3-11.

FRUITVALE—Pacific Eastern Prod. Co., 1-KCL-C, 28-29-27; 1-KCL-D, 26-29-27.

KETTLEMAN HILLS—Petroleum Securities Co., Felix 1, 35-21-17.

LAWNDALE—Smith Pet. Co., No. 2, 17-3-14.

LONG BEACH—Western O. & Ref. Co., L-C 1, 24-4-13. Allen Brown, James 1, 19-4-12.

LOS ANGELES COUNTY—Roy M. Christensen, No. 1, 34-6-11. The Ohio Oil Co., No. 1, 22-2-15.

MIDWAY—Honolulu Consolidated Co., No. 11, 8-32-24. Standard Oil Co., No. 5, 1-32-23. C. C. M. O. Co., No. 6, 7-32-23.

MT. POSO—Signal O. & G. Co., No. 6, 27-27-28.

ROSECRANS — Barnsdall Oil Co., O'Dea 3-A, 18-3-13.

RICHFIELD—Continental Oil Co., Richfield Community 3, 33-3-9. Valencia Syndicate, No. 1, 28-3-9.

SANTA FE SPRINGS—Superior Oil Co., Wardman 6, 6-3-11; Wardman 7, 6-3-11. George F. Getty, Inc., S. F. S. 35, 5-3-11. Union Oil Co., Bell 47, 6-3-11. Standard Oil Co., S. W. C. 25, 5-3-11; S. W. C. 26, 5-3-11; S. W. C. 27, 5-3-11.

SEAL BEACH—Standard Oil Co., San Gabriel 22, 11-5-12.

VENTURA—Shell Oil Co., Taylor 41, 28-3-23; Gosnell 33, 27-3-23.

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SURVEYS
ESTIMATES OF OIL RESERVES

AN EXPERIENCED OIL FIELD ORGANIZATION

WILDCATS FROM ALL SECTIONS

OKLAHOMA

GRANT COUNTY—T 28n, R 3w, Sec. 24, Lario O&G Co. et al, Conneil 1, nwc, sd 3875 ft.

WOODS COUNTY—T 27n, R 16w, Sec. 33, Sinclair's Shire 1, c ne sw, rig.

KAY COUNTY—T 26n, R 2e, Sec. 32, J. A. Vincent & Nat'l Union's McNeil 1, nwc ne, sd 2795 ft.

HARPER COUNTY—T 25n, R 22w, Sec. 14, Hoffer Oil Co.'s Cooper 1, nwc se, sd 4182 ft.

WOODS COUNTY— T25n, R 15w, Sec. 10, Bu Vi Bar et al's 1, sec sw, rust 4208 ft, bailing mud.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden's Vollner 2, nec se ne sw, lost tools 5640 ft sd.

WOODWARD COUNTY—T 24n, R 17w, Sec. 32, Otstot Dev. Co.'s Simmons 1, sec, sd 1500 ft.

WOODS COUNTY—T 24n, R 13w, Sec. 18, Miller et al's Copenhaver 1, nwc spudded and sd.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, Washoma Oil Co.'s Acre 1, swc ne, rig.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer's White 1, sec nw, sd 4755 ft.

WOODWARD COUNTY — T 23n, R 20w, Sec. 9, Billy Oil Co.'s Wyatt 1, c se, sand 3200-40 ft hfw, dr 3535 ft. T 23n, R 17w, Sec. 2, John Farrand Belva 2, csl sw se, sd 400 ft.

MAJOR COUNTY—T 23n, R 16w, Sec. 4, Wilson et al's Creech 1, nec sw, sd 510 ft.

WOODWARD COUNTY—T 21n, R 21w, Sec. 25, Sharon's Elmore 1, swc, sd 3025 ft. T 21n, R 19w, Sec. 15, Burgoyne Bros.' 1, swc se ne, sd 1950 ft.

MAJOR COUNTY—T 20n, R 14w, Sec. 23, Keller et al's Horton 1, c ne ne, spudded and sd.

GARFIELD COUNTY—T 20n, R 4w, Sec. 9, Marland's Looman 1, nec se, sd 5738 ft. Sec. 12, Marland's Miller 1, swc, sd 4586 ft, hfw.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, C. E. Love et al's Phillips 1, c nw sw, rig.

DEWEY COUNTY—T 18n, R 15w, Sec. 9, Huckleby & McCoy's Perfect 1, nec, sd 4500 ft.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healy & Consolidated Drlg. Co.'s Quier 1, sec sw, co to run pipe.

KINGFISHER COUNTY—T 16n, R 6w, Sec. 27, Crawford & McKenna's Sturgeon 1, nec sw, sd 4895 ft.

BLAINE COUNTY—T 15n, R 12w, Sec. 26, W. J. Donley's Dickens 1, sec nw, td 4509 ft, abandoned.

CANADIAN COUNTY—T 14n, R 6w, Sec. 9, A. D. Spears' Piatt 1, swc ne, sd 3223 ft.

OKLAHOMA COUNTY—T 13n, R 3w, Sec. 18, Slick & Bailey's Lufkin 1, c ne se, ur 5-inch at 5120 ft.

CIMARRON COUNTY—T 5n, R 5 ecm, Sec. 22, Magnolia's School Land 1, c se ne, dr 1645 ft.

TEXAS COUNTY—T 1n, R 15, ecm, Sec. 25, Skaer et al's Hitch 1, nwc, rigged up and sd.

OSAGE COUNTY—T 29n, R 8e, Sec. 30, Superior Oil Corp.'s 1, nwc ne, show oil 1415-35, 1865-1900 ft, dr 2500 ft. T 26n, R 7e, Sec. 13, Wrightsman 1, sec nw, lcn.

PAWNEE COUNTY—T 22n, R 5e, Sec. 33, Washoma O. & G. Co.'s Buffalo 1, sec nw, td 3812 ft, pb to 3146, shot 14 qts. 3134-46 ft, co and testing.

OSAGE COUNTY—T 22n, R 8e, Sec. 8, Harry McGill's 1, swc se, show gas at 2335-49 ft, sd 2688 ft.

LINCOLN COUNTY—T 16n, R 4e, Sec. 15, J. V. Bailey et al's House 1, c ne se, dr out cement. T 16n, R 5e, Sec. 2, L. G. Wheeler Mote, et al's Wolfe 1, nwc ne sw, co 2755 ft. T16n, R 6e, Sec. 19, Flynn & Morgan's Finley 1, swc, dr 310 ft. T 12n, R 3e, Sec. 29, Phillips' Robertson 1, sec nw, rig.

McINTOSH COUNTY—T 12n, R 18e, Sec. 15, A. B. Wolfe et al's Beck 1, nwc se, spudded and sd.

ABBREVIATIONS

NOTE—The following is the explanation of abreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al's McDuff 1, swc nw se, Wilcox 5443-73 ft, dr but making no hole.

HASKELL COUNTY—T 9n, R 18e, Sec. 10, Marion Oil Co.'s Sanders 1, nwc ne sw, sd 1800 ft.

LATIMER COUNTY—T 5n, R 18e, Sec. 15, Limestone O&G Co.'s Murry 1, swc, 1½M gas at 2518-30 ft, dr 3110 ft.

OKLAHOMA COUNTY—T 12n, R 2w, Sec. 30, Magnolia's Noble 1, nwc sw sw, dr 2925 ft. T 12n, R 3w, Sec. 15, Cromwell's Thompson 1, swc ne ne, fsh 7182 ft.

OKFUSKEE COUNTY—T 11n, R 7e, Sec. 21, Slick's Wolfe 1, sec ne se, dr at 4540 ft, hfw.

SEMINOLE COUNTY—T 11n, R 7e, Sec. 34, Phillips' Mills 1, nwc sw, dr 4705 ft, 1000 ft. water.

CLEVELAND COUNTY — T 10n, R 2w, Sec. 8, Slick & Phillips' Sudik 1, c ne ne, setting 9-inch csg at 5500 ft.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 16, McCulloch et al's Hollis 1, sec nw, dr 3435 ft. T 10n, R 7e, Sec. 5, Marland et al's Strothers 1, nwc se ne, cemtg 6-inch at 4833 ft.

POTTAWATOMIE COUNTY—T 8n, R 3e, Sec. 12, Slick's Nix 1, sec nw nw, dr 5118 ft.

SEMINOLE COUNTY—T 8n, R 9e, Sec. 4, McCulloch's McGilbray 1, swc ne, hfw 3410 ft, fsh.

CLEVELAND COUNTY—T 7n, R 1w, Sec. 15, Sooner Oil Co.'s Vandeveer 1, nec nw sw, sd 3120 ft.

POTTAWATOMIE COUNTY—T 6n, R 4e, Sec. 19, Rush & Baughn's Lester 1, sec ne ne, dr 3542 ft.

SEMINOLE COUNTY—T 6n, R 5e, Sec. 11, McCulloch's Powell 1, nwc, rur, sd. T 6n, R 7e, Sec. 34, Magnolia's Harjo 1, nec se, coring 2502 ft.

PONTOTOC COUNTY—T 3n, R 4e, Sec. 36, Denver P&R Corp.'s Roberts 1, sec ne ne, dr 1912 ft.

HUGHES COUNTY—T 5n, R 9e, Sec. 17, E. W. Whitney's Huddleston 1, sec sw, ur 5-inch at 3400 ft, sd.

PONTOTOC COUNTY—T 4n, R 8e, Sec. 23, Independent's Hampton 1, nec, dr 955 ft.

PITTSBURG COUNTY—T 4n, R 12e, Sec. 32, Kerr & Key's Tall 1, c nw nw, dr 1528 ft.

COAL COUNTY—T 2n, R 8e, Sec. 6, J. S. Cosden's Richardson 1, nwc ne ne, dr 882 ft. T 1n, R 9e, Sec. 24, Galbreath et al's Jones 1, swc se, fsh 3350 ft. T 1n, R 11e, Sec. 10, I. T. I. O.'s Cook 1A, sec sw nw, dr 6720 ft.

CUSTER COUNTY—T 14n, R 14w, Sec. 1, W. E. Witt's Wellman 1, c se, sd 100 ft.

ROGER MILLS COUNTY—T 11n, R 26w, Sec. 4, L. C. Hivick's Davis 1, c nw ne, sd 700 ft.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey's Robinson 1, c ne nw, spudded and sd.

BECKHAM COUNTY—T 8n, R 25w, Sec. 30, Benedum & Trees Oil Co.'s Rogers 1, swc dr 400 ft. T 8n, R 22w, Sec. 20, Carson et al's Denby 1, swc se ne, 1215 ft, fsh and co. T 8n, R 21w, Sec. 33, Day Oil Co.'s Ault 1, c nw nw, fsh 1515 ft, may skid.

KIOWA COUNTY—T 7n, R 17w, Sec. 34, G. B. Cloyes' Brazil 1, swc ne, show oil 908-18 ft, dr 1275 ft. T 7n, R 15w, Sec. 35, David Malernee's Van Kirklan 1, nwc, sd 858, ft, flowing sulphur water.

CADDO COUNTY—T 6n, R 10w, Sec. 22, English Drlg. Co.'s Jacobs 2, nwc se, sd 500 ft.

GRADY COUNTY—T 4n, R 5w, Sec. 28, Wichoma Oil Corp.'s Morrison 1, nec, lcn.

JACKSON COUNTY—T 1n, R 20w, Sec. 4, Houseman et al's Northington 1, nec, sd 2020 ft.

KIOWA COUNTY—T 1n, R 17w, Sec. 13, Allen Bros.' Howell 1, nwc se, sd 630 ft.

STEPHENS COUNTY—T 1n, R 7w, Sec. 2, Stahl & Burris' Jefferson 1, sec ne nw, sd 3012 ft.

COTTON COUNTY—T 1s, R 11w, Sec. 34, Shasta Oil Co.,'s Indian 1, nec, 2250 ft.

KIOWA COUNTY—T 2s, R 16w, Sec. 6, Landfair's 1, sec sw se, sd 2535 ft.

COTTON COUNTY—T 2s, R 12w, Sec. 31, Pearce & Brown's Heitzler 1, nwc sd 2507 ft. T 3s, R 12w, Consolidated Oil Co.'s Indian 1, nec sw, lcn. T 3s, R 11w, Sec. 26, Consolidated Oil Co.'s Conklin 1, nwc, drlg 2300 ft. T 3s, R 10w, Sec. 11, E. J. Stump's Jones 1, nwc ne, lcn rur.

STEPHENS COUNTY—T 3s, R 9w, Sec. 22, Pelwin Oil Co.'s King 1, swc se, moving in tools. T 3s, R 8w, Sec. 26, E. J. Stump's Simmons 1, swc sd 2910 ft.

COTTON COUNTY—T 4s, R 12w, Sec. 16, Guiler & Dyson's Thomas 1, sec sw, show oil and gas 1252-54 ft, abn 2128 ft. T 4s, R 9w, Sec. 31, Amerada's Delana 1, sec nw nw, dr 925 ft.

JEFFERSON COUNTY—T 5s, R 7w, Sec. 35, Amerada et al's Major 1, sec nw nw, lcn.

McLAIN COUNTY—T 5n, R 2e, Sec. 31, Tidal et al's Haberson 1, c se se, cemtd 10-inch at 85 ft. T 5n, R 3e, Sec. 22, Mid Continent Pet. Corp.'s James 1, sec, dr 3235 ft.

GARVIN COUNTY—T 3n, R 3w, Sec. 36, Gilcrease-Douglas Oil Co.'s Barnett 1, sec nw ne, dr 230 ft.

MURRAY COUNTY—T 1n, R 2e, Sec. 17, Revels & McGee's Wolfe 1, nwc, show oil 2075-85 ft, gas 2094-95 ft, hfw 2096-2100 ft, td ur 8-inch.

JOHNSTON COUNTY—T 1s, R 7e, Sec. 29, Smith-Kinsley's Lane 1, sec nw, sd 1530 ft.

CARTER COUNTY—T 4s, R 2e, Sec. 32, Tex-Okla Drlg. Co.'s Anderson 1, sec ne se, sd 420 ft. T 5s, R 3w, Sec. 19, Devonian Oil Co.'s Myer 1, nwc se, td 2978 ft, dry and abn.

BRYAN COUNTY—T 9s, R 9e, Sec. 36, W. G. Endicott et al's Craig 1, c nw ne, dr 1235 ft.

KANSAS

BARBER COUNTY—Barbara Oil Co.'s Lytle 1, cel ne ne sw, 12-33-13w, 25M gas 4558-68 ft, ur csg. Barbara's Blunk 1, c ne nw, 20-34-13w, sd 5315 ft. Rolands et al's Picken 1, ne nw ne 27-30-14w, 8-inch csg 4475 ft. Allison & Fitzwilliams' Morrise 1, c nw se se 9-30-12w, dr 1250 ft.

BUTLER COUNTY—Smith & Ash' Donnelly 1, nec 8-24-6e, dr 440 ft. Phillips & Shell's McClellan 1, se sw 23-26-6, dr 340 ft. LaRobb et al's Bronsenger 1, ne se 24-27-3e, ru. Shell's Thiesstein 1, c se sw se 10-24-3e, spud.

CHASE COUNTY—Grisner & Fowler's Carson 1, ne ne 9-21-7e, dr 3190 ft.

CLAY COUNTY — Derby & Snow Bros.' McNeil 1, c sw nw 15-9-4e, dr 1800 ft.

COWLEY COUNTY—Pyle & Sutter's Lindstrum 1, se ne 9-35-4e, ur 5-inch 3405 ft. Wakefield & Osborne's Osborne 1, nw ne 18-30-3e, dr 1830 ft. J. B. Markey's Tatum 1, se sw 11-31-6e, sd 500 ft.

DICKINSON COUNTY — T. C. Johnson's Detweiler 1, swc ne nw 32-16-4e, spudded and sd.

EDWARDS COUNTY — Amerada-Wilcox' Teansil 1, nw cor 32-35-19w, dr 4730 ft. British-American Oil Co.'s McCarty 1, 31-25-17w, dr 3695 ft.

ELLIS COUNTY—Rush Oil Co.'s Gatewood 1, nw 4-15-20w, sd 1100 ft. Finney & Weimer, Freeman 1, nw se se 24-15-20w, spudded and

sd. Brown's Gestner 1, nw se nw, 13-13-18w, dr 1350 ft. Burger et al's Hadley 1, c sw sw nw 20-11-17w, ru and sd. Brouck's Wagner 1, c se se 35-15-16w, dr 3005 ft. Phillips' Schmeidler 1, nw cor 20-12-17w, 8-inch csg 2910 ft. Cosby et al's Robbins 1, sw nw 15-14-16w, ru. Phillips' Johnson 1, sw ne 9-13-19w, dr 1800 ft. Phillips' Dechant 1, ne se 12-13-16w, dr 650 ft.

GREENWOOD COUNTY—P. H. Balieu's Bright 1, ne sw 22-27-12e, sd 1210 ft.

GEARY COUNTY—Wright et al's Younkers 1, nwc ne 17-11-5e, sd 1200 ft.

GRAHAM COUNTY—Gulf Coast's Johnson 1, swc nw se 27-8-15w, sd 2450 ft.

HARPER COUNTY—Amerada's Mendiville 1, c se se 24-34-6w, dr 4330 ft.

HARVEY COUNTY — Margaret Gay Oil Co.'s Grouse 1, nw ne nw 29-23-1w, sd 2100 ft. Helmerick & Payne's Lindemood 1, c sw ne sw 2-22-1e, dr 2428 ft. Empire's Tangeman 1, c sw ne ne 19-22-1e, dr 2810 ft. R. F. Garland's Cox 1, ne cor 27-24-1w, dr 3160 ft. Hartman & Skaer's Seaman 1, cnw ne se 26-24-1e, dr 1050 ft. Roth & Faurot's Bombrowsky 1, nwc 26-22-1e, dr 300 ft. Jolly & Ogg's Randall 1, nec 11-24-1w, ur 10-inch csg, td 246 ft. Patton et al's Buning 1, c se sw ne 18-24-2e, dr 600 ft. Jolly & Ogg's Hupp 1, se ne 22-23-1w, ru. Fisher & Lauck's Regier 1, nw ne 17-23-2e, td 2905 ft, hfw. Rosenthal et al's Ingalls 1, c nw sw 24-23-3w, dr 300 ft. Slick & Connell Oil Co.'s Gatz 1, nw se 30-22-1e, rig.

JACKSON COUNTY — Garvin & Morton's Lutes 1, sw nw nw 27-7-15e, dr 1500 ft.

JEFFERSON COUNTY—Wichita Oil Co.'s Simpson 1, nw sw sw 19-10-17e, ru and sd.

KIOWA COUNTY—Wilcox O. & G. Co.'s Woodward 1, nec 35-27-17w, spudded.

LANE COUNTY — Blankenship Pet. Co.'s Shaeffer 1, nec ne 24-16-28w, spudded and sd. Robinson et al's Dickerson 1, swc nw se 11-18-27w, cement 8-inch 2625 ft.

MARION COUNTY — Connell & Prairie's Zirak 1, se sw 3-18-3e, dr 1115 ft. Meyer's Pepp 1, sw ne 10-18-2e, dr 1930 ft. Hartman & Skaer & White Eagle's Kline 1, ne nw 28-12-3e, sd 2270 ft. General Utilities Propp 1, c ne se sw 8-19-4e, rig. Hanna's Pankratz 1, ne ne sw 13-20-3e, rig. General Utilities' Burkholder 1, csl n½ se 8-19-3e, spudded. Moore et al's Miller 1, ne 26-19-1e, rig.

MARSHALL COUNTY — Irwin et al's Cooper 1, ne nw 10-3-7e, dr 500 ft.

MORRIS COUNTY—Hiatt et al's Blythe 1, nw ne 35-15-5e, spudded.

McPHERSON COUNTY—McPherson County Gas Co.'s Rasmussen 1, swc 8-18-3w, rig. Ted Washabaugh's Vosshell 1, ne ne 9-21-3w, dr 240 ft. Mid Kansas' Yoder 1, c nw sw 8-20-4w, dr 3425 ft. Lariaux et al's Martinson 1, ne se 9-19-3w, rig.

McPHERSON COUNTY — Helmerick & Payne's Rusen 1, c ne se sw, 23-21-2w, d 450 ft. Tatlock et al's Meyer 1, c sw ne, 32-20-1w, sp. McPherson's Reitz 1, ru se sw, 1-20-2w, rig.

NESS COUNTY—Barnsdall's Lauck 1, s sw, 35-18-21w, d 3407 ft.

OTTAWA COUNTY—Anderson et al's Bank 1, ne nw, 28-10-2w, ru 3140 ft.

OSBORNE COUNTY—Jarvis' Jellison 1, sec, 13-10-15w, d 2045 ft. Empire's Crest 1, se ne, 30-9-14w, 12-in 1170 ft.

PAWNEE COUNTY—F. C. Troupe's Lovett 1, cel ne ne, 31-21-16w, sd 1560 ft.

PRATT COUNTY—Jones & O'Haver's Lunt 1, csw nw, 15-28-14w, csg trouble td 200 ft.

PHILLIPS COUNTY—Watsonian Oil Co.'s Marklein 1, ne sw, 21-3-19w, fsh 3895 ft. Watsonian & British-American's Weinman 1, s sw sw, 34-2-19w, d 1525 ft.

RENO COUNTY—Perry et al's Oswald 1, ne ne se, 30-22-5w, d 945 ft. Austin Drlg. Co.'s Strickley 1, swc nw, 12-26-5w, sp.

RICE COUNTY—Allison & Fitzwilliams' Poland 1, ne sw ne, 36-19-8w, cellar. Higgins Higgins & Steinbuble's Shurr 1, ne sw, 21-20-10w, sd 1820 ft, ½m gas.

RILEY COUNTY—Grey et al's Smith 1, ne se, 30-6-6e, ru.

ROOKS COUNTY—Krueger et al's Steis 1, c nw se sw, 12-9-16w, sp and sd. Burford & Brimm's Texa 1, ne sw se, 22-9-19w, sp and sd. Prairie's Bick 1, c se, 22-9-18w, d 1725 ft.

RUSH COUNTY—Danciger O. & R. Co.'s Pinonka 1, c ne sw ne, 17-19-17w, d 1150 ft. Sinclair's Beiching 1, nw ne nw, 9-16-16w, td 3773 ft, water, d and h. Central Commercial's Brack 1, nec sw sw, 12-17-16w, sp and sd. **Phillips' Legleiter 1, c ne nw se, 10-16-16w,** d 2500 ft. Barnsdall's Brock 1, c se se, 21-17-17w, rig. Danciger's Swidt 1, c sw se sw, 22-17-17w, ru. Wilcox O. & G. Co.'s Schwartz Roph 1, c ne nw sw, 27-17-17w, sp.

SALINE COUNTY—M. Esty et al's Peterson 1, c ne, 6-16-5w, sp and sd. Nathan-Jones et al's Robertson 1, nw sw, 27-14-2w, sd 3445 ft, show oil. Kenning Coastal Co.'s Beal 1, c, 23-14-5w, sp. Boyle et al's Miller 1, swc se, 21-16-1w, sd 2615 ft.

SEDGWICK COUNTY—Magnolia's Wise 1, nwc 36-28-1w, d 2515 ft, hfw 2195-2200 ft. Producers Oil Co.'s Jones 1, c sw ne se, 31-26-2e, d 1010 ft. Hawkin's Murfie 1, c sw, 4-25-1w, sp and sd. Barnsdall's Faber 1, sw ne, 6-27-1w, 3940-50 ft, hfw, d and a. Hartman & Skaer & Carter's Hutchinson 1, ce se se sw, 23-28-2w, d 1400 ft. Morgan & Tilley's Fitzgerald 1, nw ne, 5-26-1w, sd 800 ft. Slick's Rosenhagen 1, c sw se ne, 33-27-4w, ru. Blankenship & Washoma's Tuttle 1, sw nw, 1-27-1e, sp. Connell Oil Co.'s Cross 1, ne cor, 27-25-1w, p b 2730 ft to test K. C. lime. Kroder et al's Harden 1, sw nw sw, 20-26-1e, d 300 ft. Morgan et al's Corn 1, sw ne, 28-25-1w, d 3011 ft. Jones & Kirk's Sheppard 1, c se ne, 4-25-1e, d 1400 ft. Kyser et al's Stroot 1, sw nw 28-26-1w, d 3100 ft. H. H. Patton's Ryder 1, nec, 22-25-1e, d 3140 ft. Lario & Blair's Tjaden 1, c ne se, 22-29-2w, fsh 3130 ft. Maglason's Buckles 1, nw se, 3-28-1w, sd 250 ft quick sand. Ramsey's Schuessler 1, swc, 1-25-1e, d 2890 ft. McCulloch et al's John 1, c ne sw ne, 24-29-1e, sd 3578 ft hfw. Miller & Wentz's Shaeffer 1, nw ne, 9-27-2w, sd 1600 ft. Lewis et al's Taylor 1, nw ne, 23-27-2e, d 2708 ft. Shawrer et al's Reeves 1, c se sw ne, 19-28-1e, Wilcox 3528-30 ft, td 3535 ft water. Washabaugh's Harrison 1, c nw ne ne, 3-26-2w, sd 350 ft. Hammond & Stout's Roeder 1, sw nw, 23-27-2w, timbers. Connell & Slick's Mahannah 1, c ne se se, 3-25-1w, d 700 ft. Sullivan et al's Shelly 1, c ne ne se, 32-29-2e, d 850 ft. Reynolds & Roger's Updegraft 1, c se sw se, 26-25-1w, ru. Patton & Wentz's Swanson 1, nw ne, 6-26-2e, d 1020 ft. Twist et al's Joseph 1, 4-25-1w, sp. Tatlock et al's Cook 1, swc, 25-28-2e, d 1280 ft. LaFont et al's Carlton Bros. 1, c se se sw, 24-28-1e, rig. Frank Wahn's Wilson 1, c ne nw se, 9-26-1w, ru. Shell's Lygrisse 1, se ne, 15-26-2e, d 2785 ft.

SHERMAN COUNTY—A. L. Henson et al's Murray 1, ne se nw, 22-7-40w, sd 3035 ft.

SMITH COUNTY—Mid-Kansas' Lambert 1, nec, 4-2s-13w, ru 8-in cas hfw 2878 ft.

STEVENS COUNTY—W. Sidwell et al's Kelly 1, sw ne, 16-34-38w, d 1310 ft. Trees Oil Co.'s Unknown 1, sw ne sw, 3-35-38w, d 500 ft.

SUMNER COUNTY—Gypsy's Williams 1, nw se sw, 16-35-3w, d by tools 4437 ft, td 3m gas. Davidson et al's Strickland 1, sw se, 12-35-1w, rig. Marland's Curry 1, nw sw, 26-34-2e, d 1170 ft.

TREGO COUNTY—Central Commercial Oil Co.'s Ellis 1, ne sw ne, 20-13-21w, d 3410 ft.

WASHINGTON COUNTY—McCool & Vincent's Linn 1, nw ne, 27-4-3e, ru.

EAST TEXAS

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CASS COUNTY—		
Davis & Pigg, Ed Lamber 1, Lambert sur	*	1952

BOWIE COUNTY—Hooks O. & G. Co.'s Rosenberg 1, King sur, temp abn, td 3086 ft.

CAMP COUNTY—Rogers et al's Enfelt 1, Montgomery sur, sd 1920 ft.

CASS COUNTY—Davis & Pigg's Ed Lambert 1, Lambert sur, dry abn, td 1952 ft.

MARION COUNTY — Trimount Pet. Co.'s Mebane-Stiles 1, Gupton sur, 1000 ft fluid in hole, will pump, td 2365 ft.

RED RIVER COUNTY—D. M. Buffington's Hoosier 1, Hughart sur, sd 1565 ft. Shad Harper's Garland 1, Jos. Wagley sur, sd wo 1862 ft. Johnson Pet. Co.'s Randolph 2, Dean sur, sd wo 1440 ft.

SHELBY COUNTY — Chapparal Oil Co.'s Holt 2, Mathre Moore sur; sd wo 3004 ft. Gulf Ref. Co.'s Caraway 1, Patterson sur, dr hard grey lime streaks blue shale 3434 ft.

NORTH LOUISIANA

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BIENVILLE PARISH—		
W. P. Wallace, State 1, 16-16-10	¶5	2495

BIENVILLE PARISH — W. P. Wallace's State 1, 16-16-10, five mil ft gas, 10 ft br sand, td 2495 ft.

BOSSIER PARISH — Big Ben Oil Co.'s Stewart 2, 15-18-12, sd wo 1300 ft Nell & Lanier's Biedenharn 1, 22-31-14, sd 775 ft. Walker et al's Antrim 1, 28-22-14, washing to bottom, td 2985 ft. John F. Woodman's Bolinger 1, 9-22-11, coring 2700 ft. Magnolia Pet. Co.'s B. M. Cook 1, 2-22-11, sd wo 2713 ft. Sallie Coyle 1, 2-22-11, dk.

CADDO PARISH—D. C. R. Oil Co.'s Hunter Est. 1, 17-19-14, tested 600 ft 41 gravity oil ds test 2420-22 ft, arr to set 6-inch csg 2422 ft. C. A. Carpenter Tr.'s Hammock 2, 34-18-16, rig up.

CATAHOULA PARISH—Lochnager O&G Co.'s Taliaferro 1, 26-9-6e, sd 900 ft.

CLAIBORNE PARISH — El Dorado Chief Oil Co.'s Baker 1, 26-20-7, temp abn, td 3040 ft. Smitherman & McDonald's Miller 1, 17-23-8, sd wo 4780 ft.

DE SOTO PARISH — Benedum & Trees' Mahoney 1, 22-14-12, dr 2600 ft. Nicholson 1, 2-15-14, dr 2500 ft. P. J. Becker's Tull 1, 23-12-15, rig up. Benson O&G Co.'s Jackson 1, 3-10-13, rig up. Luke Case, Tr.'s Boatright 1, 3-10-13, cemtd 6-inch casing 2904 ft. Carlton Drilling Co.'s Stephens 2, 12-11-16, sd wo 2046 ft. R. O. Roy's Sample 1, 1-13-14, coring 2765 ft. Thorn Oil Co.'s Burford 1, 22-14-14, sd 3020 ft. Longstreet Synd.'s Ramsey 1, 33-13-16, fsh csg, td 2802 ft.

EAST CARROLL PARISH—Palmer Corp.'s O'Brien 2, 6-19-11e, top gas rock 2330 ft.

FRANKLIN PARISH—Davis et al's Moore 1, 12-11-6e, sd wo 1430 ft.

GRANT PARISH—Carter & Collins' Ball Lbr. Co. 1, 29-7-1w, temp abn, td 2410 ft. Hardtner & Tannehill 1, 9-6-1w, dr 1423 ft.

LINCOLN PARISH—V. E. Shaw's Voss 1, 1-20-3w, dr gumbo 1300 ft.

MOREHOUSE PARISH—Rainbow Oil Co.'s Louisville Cooperage 1, 33-22-8e, drk. Woodley & Collins' Harp 1, 22-22-7e, dr 2610 ft.

NATCHITOCHES PARISH—Robeline O. & G. Co.'s Cassady 1, 7-8-9w, fshg ds 2851 ft. S. D. McDaniels' Clark-Morse Lbr. Co. 2, 23-5-6w, sd for fuel td 2325 ft.

OUACHITA PARISH—Ouachita Nat. Gas Co.'s D'Arbonne B12, 25-19-2e, sd 3349 ft. Phillips et al's School Fee 1, 16-16-4e, dr 3424 ft.

RAPIDES PARISH—G. E. Silbertson's Willemach 3, 13-5n-4w, sd wo 2250 ft. Glenmora Pet. Co.'s Fee 1, 1-2n-2w, sd 3850 ft.

RICHLAND PARISH—Richland Operating Co.'s S. R. Humble 1, 30-16-7e, cmtd 6-inch csg, td 2285 ft. S. C. Wilson's Buie 1, 17-15-7e, sd wo 1865 ft.

SABINE PARISH—R. L. Gay, Tr's Bowman-Hicks 1, 16-7-12, sd 625 ft.

TENSAS PARISH—Enochs et al's Curry 1, 39-11-12e, sd 3583 ft.

UNION PARISH—Sunby et al's Security Trust 1, 6-23-1e, sd wo 2100 ft. G. E. Carmatte's Tugwell 2, 21-22-1e, sd wo after coring oil sand, td 1845 ft. Carter & Wingfield's Clark A-3, 8-23-1e, dk; Hudson 2, 7-23-1e, sd wo 2278 ft; Hudson 3, 7-23-1e, sd wo 2278 ft; Security Trust 2, 7-23-1e, lcn. H. C. McDonald's Union Sawmill 2, 18-23-1e, sd 1500 ft.

WEBSTER PARISH—P. Hudson's Slack 1, 1-22-11 dr 2150 ft. Nemours Corp's Munn 2, 1-22-10, tested est 2 mil ft gas 3 ft sand 2623 ft wo. J. W. Clark Tr's Mayfield 2, 20-23-9, 600 ft oil in hole, will pump, td 2767 ft. Magnolia Pet. Co.'s Atkins 1, 4-22-9, rig up; Denman, 1, 1-22-11, waiting cement cem bottom hole, td 2719 ft. after show oil and gas. Harry Morris' Lewis 1, 15-23-9, sd wo 2902 ft. John F. Woodman's Boyd 1, 3-22-11, drk.

ARKANSAS

ASHLEY COUNTY—Atlantic's Bledsoe 1, 20-15-7, wo 2554 ft. Texas Co.'s Keiffer 1, 11-18-4, dr hard rock 3435 ft.

CALHOUN COUNTY—Joe Hurley's Ark. Land & Timber 1, 29-16-12, sd wo 3302 ft.

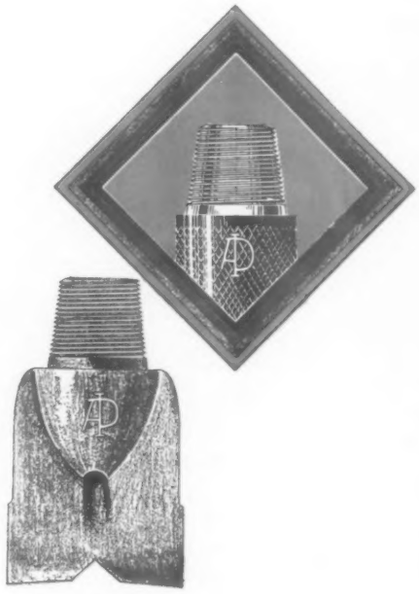
CLARK COUNTY—Wm. Henry Tr's Clark 1, 34-9-21, sd 1385 ft.

(Continued on page 104)

Standard as dollars

Specifications

A. P. I. specifications not only guarantee you standard sizes, but high standards of quality as well. Brewster A. P. I. *Shouldered* Tool Joints—Heat Treated, and Fish Tail Bits are made to stand great punishment. Their popularity is the best evidence they "deliver the goods." Write or wire for prices today.



Ask about other Brewster A. P. I. Products: Perfection Core Barrel; Chrome Nickel Drill Collars; Six Blade Rock Bits and Special Gumbo Bit.

Distributors

Continental Supply Co.
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Wilson Supply Co.
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Hercules Supply Co.
Dallas, Texas

T. T. Word Supply Co.
Lake Charles, La.

Murray-Brooks Hdwe. Co.
Lake Charles, Hackberry, La.

The Brewster
COMPANY~INC.
Shreveport, Louisiana

CRAWFORD COUNTY—Industrial O. & G. Co's Brownless 2, 22-9-31, lcn.

COLUMBIA COUNTY—G. W. Dawley et al's Fullenwider & Kitchen 1, 12-17-22, sd wo 2847 ft. Helena O. & G. Co.'s Pickler 1, 19-19-22, dr 2005 ft.

CHICOT COUNTY—W. S. Smith's Meyer 1, 19-19-2, sd wo 850 ft. Joe Crawford's Cushion 1, 14-18-2, ds stuck 2330 ft.

DALLAS COUNTY—Robt. H. Dedman's Hillman 1, 20-10-13, temp abn, td 1145 ft.

DREW COUNTY—Ohio Co.'s Jerome Lbr. Co. 1, 13-15-4, tested dry thru ds 2506 ft arr deepen.

FAULKNER COUNTY—Gold Creek O. & G. Co.'s Stermer 1, 17-4-13, temp abn, td 3462 ft.

FRANKLIN COUNTY—Ozark Nat. Gas Co.'s McElroy 1, 15-8-27, lcn.

GARLAND COUNTY—H. H. Given's Garrett 1, 1-13-19w, r to bottom 2968 ft. Chaywood Oil Co.'s Malvern Lbr. Co. 1, 17-2-17, sd wo 1665 ft.

GRANT COUNTY—Jones & Watkins' Meek 1, 5-4-11, sd 1400 ft.

JOHNSON COUNTY—Ark. Nat. Gas Corp.'s Bynum 2, 12-10-24, dr 2325 ft. McPherson 1, 10-10-24, dr 3280 ft.

LITTLE RIVER COUNTY—Grote et al's Allen 1, 21-12-13w, sd 2941 ft.

LOGAN COUNTY—Ark. La. Pipe Line Co.'s Hanna 1, 26-7-23, dr 63 ft. Ark. Nat. Gas Corp.'s W. H. Parks 1, 26-8-24, dr 4585 ft.

MILLER COUNTY—E. A. Martin Tr's Dale 4, 23-15-26, repr rig, td 3290 ft.

OUACHITA COUNTY—Little Fay Oil Co.'s Goodwin 1, 13-15-16, dr red beds 3116 ft. McDonald Bros.' Wilson 1 25-15-18, swabbed 2-inch tubing with pckr bldg stnd rig, td 2857 ft. Cumberland Pet. Co.'s Burton 1, 24-15-18, lcn. Kouri et al's Henson 1, 24-15-18, lcn. Charles McDonald's Wilson 2, 25-15-18, lcn. Root Refineries' Wilson 1, 25-15-18, lcn. Atlantic O. P. and E. M. Jones' Allen A-1, 25-15-18, rig up. Timberlake et al's Wright 1, 25-14-18, lcn. Flaucher et al's Bucks 1, 7-15-17 ,dr 1350 ft.

ST. FRANCIS COUNTY—W. F. Harris' Halbert 1, 32-4-4, lcn.

UNION COUNTY—Sunby et al's Yocum 1, 29-16-17, bldg drk and rig up. Hawthorne O. & G. Co.'s Smith 1 8-16-17, dr 200 ft. La. Oil Ref. Corp.'s Manley 1, 15-15-19, coring 2899 ft. Frank Foster et al's McDonald 1, 11-17-18, topped red beds 2985 ft, cored sw sand 3080 ft arr to deepen. Foster et al's Murphy Land Co. 1, 22-17-17, sd 1400 ft. J. O. Moore Tr's Union Sawmill 1, 11-18-12, dr 1895 ft. Carter Bell et al's Terrell 1, 27-18-14, sd 2594 ft. Wesson et al's Booth 1, 12-15-19, drk. J. W. Hawkins et al's Goodwin 1, 6-17-15, sd 1204 ft. McDonald Bros.' Mayfield 1, 29-19-15, dr 2032 ft. Standard Oil Co.'s J. R. Burns 5, 31-17-15, dr with cable tools 2226 ft; Goodwin 6, 36-17-16, drk. Grimes Bros.' Hill 2, 7-18-14, rig up wo. J. C. Marcum's DeYambert 1, 5-19-4, dr 3280 ft. W. M. Coats Tr's McDuffie 1, 32-19-16, rig up. J. W. Olvey's Cottrell 1, 22-17-17, dr 150 ft. Gulf Ref. Co.'s Rosa L. Cook 1, 1-18-15, dr hard grey sandy lime 2455 ft.

MOUNTAIN STATES

WYOMING

BIG HORN—P. & R. 3, 24-56-98, sd 2709 ft. Prairie O. & G. Co., Chilcote 1, 35-56n-95w, sd 2545 ft. P. & R. South Frannie 1, 7-57-97, sd 1950 ft. J. E. Scanlon et al 1, 19-51n-92w, dr 2800 ft. Cody Pete 1, sw 27-57n-96w, spd.

CONVERSE—Criterion Oil Co., ne 5-31-70, prep to resume, 3600 ft.

FREMONT—P. & R., Muskrat 2, nw 1-33n-92w, location. Kinney-Coastal, 23-3n-1w, dr 1760 ft.

HOT SPRINGS—Texas Prod. Co., sw 23-45n-100w, sd 1960 ft. MacPherson Oil Co., sw 2-44n-98w, set 5 3/16-in and dr ahead 3317 ft.

LINCOLN—Midwest Refining Co., Waterfall 1, 35-22-115, dr 2650 ft.

PARK—Calif. Exploration Co. and P. & R., Pitchfork 1, 12-48n-102w, cem 20-in at 225 ft. Midwest, Rosenburg 36, 25-58-98, stand cem 1350 ft. Midwest, Kirk 1, se 23-58n-98w, dr 1774 ft. Cody Pet. Co., 1, ne 4-54n-102w, dr 3510 ft. Cody Pet. Co., 1, 16-53-101, bldg rig. Oregon-Wyoming Oil Co., 30-52n-101w, resum dr 1030 ft. Grebo Royalties, 2-47n-100w, sd 1700 ft.

SWEETWATER—Mtn. Fuel Supply Co., Tucker 1, 18-31-99, sd 2480 ft. Mtn. Fuel Supply Co., Humphreys 1, 2-12-101, fsg at 2535 ft. Mtn. Fuel Supply, Otto Arnold 1, 24-19-104, rig up. Mtn. Fuel Supply, State 1, 16-12-101, fsg 3585 ft.

SUBLETTE—California Co., Wyss 1, 12-32n-115w, sd 1608 ft. California Co., Buchell 1, 11-29-115w, sd 2503 ft.

UINTA—California Co., U. P. 1, 7-17-119w, redr 2950 ft.

WESTON—Continental Oil Co., 1, 11-45-64, will deepen from 1000 ft.

MONTANA

BROADWATER—Swoboda et al 1, 36-7n-2e, td 200 ft.

BLAINE—Ohio Oil Co., Winngert 1, 3-34n-32e, dr 2989 ft.

CASCADE—U. S. Pet. Co., Miller 1, 8-21-4e, ready to resume 946 ft. Lone Star, McLean 1, 13-21n-3e, skd rig. Rothrock & Reynolds, McIver 1, se 12-20n-2e, ready to resume, mvg in.

CARBON—Ohio Oil Co., Northern Pacific 1, 11-7s-21e, will save as gas well, td 4558 ft.

CHOTEAU—Geraldine O. & G. Co., ne 1-21-11e, dr 1725 ft. Williston-Shelby O. & G. Co., 1, 12-28-11e, sd 2765 ft.

GALLATIN—California Co., Ringling 1, 35-5n-7e, dr 729 ft.

JUDITH BASIN—Gem Oil Co., 15-16-10e, rig up.

LIBERTY—Sunburst O. & R. Co., Bear's Den 1, nw 17-36-6e, dr ahead 1350 ft. Square Deal Pet., Johnson 1, se 1-32-7e, dr 3230 ft. Mid-Rocky Dev. Co., Federal Lands 1, 7-33-7e, sd 1500 ft. Western Nat'l Gas Co., 5-37-4e, rig up. Cypress Oil Co., State 1, 36-28-6e, sd 3237 ft.

PONDERA—Trapp Synd., Hover 1, 35-28-3w, water at 2185 ft., will probably abandon. Miller Bros., Bruins 1, nw 17-28-1w, rig up.

STILLWATER — J. S. Stewart, 5-2n-22e, show consid gas at 2300 ft.

SWEETGRASS — Shoshone Consolidated 1, 23-2n-15e, td 4040 ft.

TETON—Texas Pacific, 12-22-1w, sd 615 ft. for winter. Mitchener et al, Willick 1, nw 18-24-1e, abn 1835 ft.

COLORADO

ARCHULETA—Juanita Oil Co., Harvey 1, 4-32n-3w, stand 735 ft., bad weather.

BENT—Marland Oil Co., Pipe Springs 1, se 27-29s-49w, sd 3987 ft.

ELBERT—Progressive O. & L. Co., Pease 1, sw 27-10s-60w, spdg 70 ft.

JEFFERSON—Ruby Hill O. & G., Braden 1, se 14-4s-69w, dr 1380 ft.

LAS ANIMAS—Parker Club-Kinney-Coastal, 1, se 4-28s-68w, dr 1715 ft. Okla-Colo O. & G. Doherty 1, sw 32-34-60w, td 655 ft.

LARIMER — Barrows et al, 7-11s-68w, sd 2000 ft.

LAPLATA—Royal P. & R., Red Mesa 1, 27-33n-12w, sd 650 ft.

LINCOLN—Kelly Oil Co., State 1, ne 36-14s-57w, dr 1600 ft.

MESA—Peerless Oil Co., Hoel 1, ne 23-8s-104, run 10-in at 2058 ft. Parrish & Langston, D. & R. G. Western 1, nw 23-1s-1w, dr 265 ft.

MORGAN—Badger Creek O. & G., Kent 1, sw 2-50n-10, stand 800 ft.

MOFFAT—Mtn. Fuel Supply Co., State 1, 16-12-100, fsg 3585 ft., td 3600 ft. McLaughlin et al., Wms 1, 2-3n-91w, 8¼-in cem 3255 ft. McCormick et al, Sales 2, se 28-4n-92w, spd 15 ft and sd.

MONTROSE—Uncompaghre O. & G. Co., Colorado Title & Trust 1, 27-50n-10w, dr 1859 ft.

PUEBLO—Rozella Oil Co., Shaw 1, nw 3-22s-63w, pull cas 1190 ft. Christopher Oil Synd., Stanbeck 1, nw 19-22s-63w, dr 900 ft. Christy-Frantz Corp., Mannerich 1, sw 34-21s-63w, dr 710 ft. Windle et al, Alber 1, se 6-22s-63w, ready to spud. Sheffer et al, 1, se 4-22s-63w, dr 435 ft. Security Oil Trust, Buch 1, nw 14-22s-63w, dr 110 ft. G. E. Stevenson et al, Isis 1, ne 1-23-63, dr 175 ft.

RIO BLANCO—White Eagle O. & R. Co., Fordham 1, sw 9-2s-86w, sidetr bit, td 519 ft.

YUMA—Major Pet. Inc., Black Wilf 1A, sw 7-2s-43, ready to spud.

WELD—Platte Valley Pet. Corp., Patterson 1, sw 24-8n-61w., sd 4180 ft, refinancing.

NEW MEXICO

CHAVES — Snowden & McSweeney, Merchant 1, ne 27-15s-23e, fsg 4258 ft. R. T. Neal et al, Russell 1, 31-14-25e, dr 1547 ft. Warman et al, 1, sw 23-13s-24e, sd. Tannehill et al, Butler 1, se 15-2s-24e, 6⅝-in cem at 829 ft. Transcontinental, Roberts 1, 1-14s-28e, dr 875 ft.

DEBACA—Matador Oil Co., State 1, sw 6-4n-20e, cas trouble 580 ft. Pittsburg Oil Co., 1, ne 16-1s-27e, dr 4297 ft. Transcontinental, McWhorter 1, 6-35-22e, dr 3505 ft.

GUADALUPE—Hanchett Oil Co., 2, 14-8n-24e, fsg bit 2400 ft.

LEA—Midwest, Gregory 22, sw 31-25s-37e, bldg rig. Midwest, Capps 31, sw 3-19s-39e, spdg 77 ft. Midwest, Farnsworth 19, 12-26-37e, dr by bit, 3894 ft. Midwest, Farnsworth 13C, 13-26-36e, dr 3100 ft. Marland, Reed 1, 22-20s-36e, abn 4309 ft. Marland, Warren 1, 29-20s-36e, abn 4250 ft. Gypsy Oil Co., Mattern 1, 24-21s-36e, dr 3015 ft., gas showing. Exploration Co., Record 1, 26-19s-35e, td 4556 ft. Morton et al, State 1, ne 32-11s-38e, sd 1705 ft. Texas, Lynch 1, se 34-20-34, dr 3412 ft. Texas, Sheppard 1, ne 6-26s-37e, spray oil 3230 ft, tools lost. Texas, Moberly 1, se 17-26s-37e, fsg 3540 ft. Curtis Dr. Co., Nixon 1, 22-18s-34e, sd 1200 ft. Cranfill & Reynolds, Wilson 1, ne 23-25s-36e, dr 2300 ft. Empire Gas & Fuel Co., State 1A, nw 12-21s-34e, abn 4295 ft. Texas Pacific Coal & Oil Co., State 1, sw 22-23s-35e, coring at 3275 ft. Henderson et al, McDonald 1, se 18-20s-34e, dr 2246 ft. Vacuum Oil Co., 1, 14-17-34, instal rotary, td 2155 ft. Bordages et al, Hughes 1, 27-19s-38e, cas trouble, 4012 ft, 300 ft oil in hole. Pueblo Oil Co., Scott 1, se 29-25s-37e, dr 1200 ft.

McKINLEY—J. E. Halsell, Santa Fe 1, 17-18n-9w, sd 1032 ft.

ROOSEVELT—J. T. Keegan et al, Pepper 1, 6-1s-36e, ready to spud. Smith & Sloan, Lovern 1, se 4-3s-35, dr 400 ft.

RIO ARRIBA—Berringer et al, Hartman 1, ne 8-29n-7w, co 520 ft.

SAN JUAN—Continental Oil Co., Munoz 17, 2-29-19, dr 6572 ft. Dorothy Oil Co., 29-30-9, sd 712 ft. Huerfano Oil Co., Wiltbank 1, 25-29-11, td 800 ft. San Juan Pet. Co., 1, 9-29-13, sd 2950 ft. Kirtland Dr. Co., Hunt 1, 10-29-15, td 450 ft. Kutz Canon O. & G. Co., Day 1, 29-28-11, stand 722 ft. Blackrock Oil Co., 1, sw 11-25s-13w, sd 1900 ft. Iowa Oil Synd., Viles 2, 28-29-11, setting wall packer 694 ft. Angel Peaks Oil Co., Kutz Canon 1, 11-28n-11w, stand 2000 ft. Great Mesa Oil Corp., Roderick 1, sw 11-22n-14w, sd 215 ft. Milwalkee-N. M. Synd., Beardsley 1, 30-28-11w, co 1100 ft. Childers D. & P. Co., Westwater 2, nw 24-31-16w, stand 2145 ft.

SAN MIGUEL—E. Adams et al, Deason 1, 14-15n-16e, sd 1235 ft. Benedict-Wilson 1, ne 25-17n-16e, sd 800 ft.

SOCORRO—Arnold et al, 2, ne 13-6s-1w, dr 1607 ft.

TORRANCE—Bluhall O. & G. Co., 20-6n-10e, dr 1739 ft. Hall et al, Pinos Wells 1, sw 25-3n-13e, stand 400 ft. Sinnock et al, Kutchin 1, ne 13-7n-7e, crooked hole, will skid.

VALENCIA—Rio Puerco Oil Co., N. M.-Ariz Land Co. 2, nw 13-6n-2w, wait pipe 3145 ft. Acme Oil Co., N. M.-Ariz Land Co. 1, 26-6n-3w, dr up cas show.

SOUTHWEST TEXAS

Completion

Company, Well and Location	Initial Production Bbls.	Depth
GONZALES COUNTY—		
Empire G. & F. Co., State River Bed 1	*	4077

BASTROP COUNTY — Germany et al's Hendrick 1, 2 mi nw Cedar Crk, ru. Gypsy Prod. Co.'s Lottman 1, e Bastrop, dr 2150 ft sandy shale. Livingston et al's McCall 1, 1 mi s Bastrop, dr 1575 ft shale. Owens et al's Boodman 1, 1½ mi Cedar Creek, sd 382 ft.

CALDWELL COUNTY—Shell's Wilhms 1, Jolly dist, lcn abn. Anderson et al's Horner 1, 1 mi s Lockhart, dr 1200 ft shale. Alexander-Smith's Cardwell 1, 4 mi n Lockhart, ru; Gomillion 1, 10 mi n Lockhart, dr Edwards lime at 1920 ft; Carter 1, 2 mi se Lytton Springs, lcn. Detex Oil Co.'s Robinett 1, 4 mi w Luling, dr 2600 ft.

GONZALES COUNTY—Greene et al's Dix 1, sw part co, repairing pumps. Linderman Bros.' Frampton 1, 1 mi n Waelder, lcn. Benedum Trees Oil Co.'s Lamkin 1, 1 mi n Ottine, ru. Flynn et al's Wilhouser 1, 12 mi s Gonzales, sd 5212 ft. Empire G. & F. Co.'s Norwood 2, Ottine area, ru; State 1, Ottine area, abn at 4077 ft, Edwards lime. Indiana Pet. Corp.'s Karnstadt 1, Ottine, dr 4295 ft Georgetown lime. Joe Bruner's Miller 1, 1 mi n

May we, on the occasion of the expiration of the Perkins' Patents, indulge in a moment's retrospection? Wells, farms, even fields that would long since have been abandoned, still in profitable production; gas blowouts apparently too "wild" to be controlled quickly brought under subjection; 40,000 wells given the protection of an impervious, water-tight and permanent jacket of cement—the best known insurance that foreign fluids will be kept *out* and the all-important fluid kept *in*.

Yes, the Perkins' Process meant much to the oil industry; and Halliburton organization, initiative and enterprise meant much to the Perkins Process.

HALLIBURTON

OIL WELL CEMENTING COMPANY

DUNCAN, OKLAHOMA

Say you saw it in The OIL WEEKLY

Waelder, dr 1120 ft shale. Crown Pet. Co.'s Hattenbach 1, ru.

GUADALUPE COUNTY—Christie et al's Thomas 1, 2 mi ne Seguin, sd 1227 ft. Sights et al's Woehler 1, 4 mi e Seguin, dr 2196 ft chalk. Miller Bros.' Springs 1, 5 mi s Seguin, dr 2370 ft lime. Mid-Kansas' Lohman 1, 8 mi s Staple, ru. Adams-Lyle's Lambrecht 1, 6 mi s Seguin, dr 2405 ft Georgetown lime. Magnolia's Whiley 1, 6 mi e Kingsbury, dr 2450 ft shale.

JIM HOGG COUNTY — The Texas Co.'s Vela 2, lcn.

MAVERICK COUNTY—Rycade Oil Corp.'s Chittim 4, 20 mi e Eagle Pass, dr 475 ft; Chittim 3, 20 mi e Eagle Pass, dr 3318 ft lime; Sullivan 4, 20 mi e Eagle Pass, dr 200 ft.

STARR COUNTY—The Texas Co.'s Virginia Guerra 1, dr 700 ft.

WEBB COUNTY—The Texas Co.'s Weeks-Wilder 2, drk.

SOUTH LOUISIANA

Completions

Company, Well and Location	Initial Production Bbls.	Depth
ST. JAMES PARISH—		
U. S. Mineral Dev. Co., Reynaul Co. 1	*	1725
ST. TAMMANY PARISH—		
Pearl Oil Corp., Fritsche 1, Slidell.	*	2025

ASCENSION PARISH — Gulf's United Lands Co. 11, Sorrento, dr 3320 ft; Belle Helene Sugar Co. 1, Darrow, dr 2800 ft gbo. Triumph Oil Corp.'s Lacey 2, 3 mi se Sorrento townsite, depth 2100 ft. Burnside Oil Co.'s Roberts 1, sd 920 ft; Roberts 2, ru. Big Dome Drlg. & Dev. Co. and J. S. Kimbrough's Rearwood 1, Darrow, dr 2770 ft gbo. Baton Rouge Pet. Co.'s Liotta 1, sd 1000 ft.

CALCASIEU PARISH—Gulf's Ind. Lbr. Co. 13, Starks, dr 1685 ft sand; Lutcher Moore 9, Starks, lcn; Lucher Moore 15, Starks, dr 2450 ft sand; Lucher Moore 14, Starks, dr 3685 ft sandy shale. The Texas Co.'s Moss 1, sect. 8-10s-9w, lcn. Union Sulphur Co.'s Fee 736, Sulphur, dr 4990 ft sand rock; Fee 740, Sulphur, abn at 6275 ft; Fee 741, Sulphur, completed for 1000 bbls at 3125 ft; Fee 742, Sulphur, dr 1900 ft lime rock; Fee 743, Sulphur, dr 1724 ft rock. J. W. Watson's La. Land Co. 1, Sulphur dist, dr 3900 ft in second hole. J. O. Davis' Mimms 1, Lake Charles, ru.

CAMERON PARISH—Pure Oil Co.'s Yount-Lee 7, Sweet Lake, dr 4605 ft; Yount-Lee 8, Sweet Lake, dr 4960 ft sand. Calcasieu Oil Co.'s Doiron 5, E. Hackberry, dr 3440 ft; Valery 6, E. Hackberry, dr 3720 ft. The Texas Co.'s Calcasieu Lake B-4, E. Hackberry, dr 3190 ft gbo; Calcasieu Lake A-3, S. Calcasieu Lake dome, drk. Rycade Oil Corp.-Humble's Gulf Land 1, Hackberry, preparing to swab through tubing, depth 3740 ft; Gulf 2, dr 2290 ft shale. Yount-Lee Oil Co.'s Kaough 1, Hackberry, dr 3235 ft; Vincent 2, dr 3295 ft. Cameron Oil Co.-Rycade's Duhon 4, Hackberry, bldg drk; Kaough 1, dr 3057 ft sand and shale. Cherokee Oil Co.'s Duhon 1, E. Hackberry, dr 3565 ft sand. Moon Oil Co.'s Sanner 3, Hackberry, dr 2200 ft gbo. Snu Oil Co.'s Vincent 1, Hackberry, completed for 100 bbls at 3235 ft; Vincent 2, dr 3235 ft heaving shale. Federal Pet. Co.'s Kaough 3, Hackberry, completed for 60 bbls at 3174 ft; Kaough 4, set casing at 3175 ft total depth; Duhon 2, set casing at 3175 ft over sand showing oil. Rex Pet. Corp.'s Noble 1, Hackberry, completed for 600 bbls at 3280 ft; Noble 2, ru. Pure Oil Co.'s Duhon 1, Hackberry, dr 2800 ft gbo; Duhon 2, dr 2435 ft gbo. Sunshine Oil Co.'s Benoit 1, Hackberry, drk. Shell Pet. Corp.'s Watkins 6, Black Bayou, dr 4100 ft shale and lime; Watkins 8, abn at 1100 ft; Watkins 9, bldg drk.

IBERIA PARISH—The Texas Co.'s Vermilion Bay A-3, dr 4390 ft rock. Gulf's State Z-9, Loreauville, lcn; Kling 3, Loreauville, fsh 3965 ft; Moresi Co. et al 1, dr 2975 ft sand and lime.

IBERVILLE PARISH—Shell's Wilbert 3, White Castle, depth 3862 ft. Standard of La.'s Wilbert 2, Bayou Blue, ru; Wilbert 3, completed canal to lcn; Schwing 1, dr 3687 ft; Schwing 2, bldg drk; Schwing 3, driving piling. Union Sulphur Co.'s Schwing 3, Bayou des Glaise, abn at 3710 ft in salt.

JEFFERSON DAVIS PARISH—Vacuum's Earl 1, Roanoke, dr 5225 ft; DeVilbiss 1, Roanoke, dr 5520 ft.

LA FOURCHE PARISH—Gulf's Stark 9, Thibodaux, abn at 1400 ft; Stark 10, dr 1225 ft sandy shale; Stark 11, ru. Union Sulphur Co.'s Dibert-Stark-Brown 1, Thibodaux, abn 1530 ft salt; Dibert-Stark-Brown 2, abn 1775 ft salt; Dibert-Stark-Brown 3, dr 2430 ft sand.

PLAQUEMINE PARISH—Gulf's Morris & Rose 1, Spanish Pass, lcn. The Texas Co.'s Garden Island Bay 1, 15 mi se Venice, drk.

POINT COUPEE PARISH—Miller et al's Kornbacker 1, sd 1925 ft. Fruen et al's La Cour 1, sd.

ST. JAMES PARISH—U. S. Mineral Dev. Co.'s Reynaul Co ,1, depth 1720 ft.

ST. LANDRY PARISH—The Texas Co.'s Botney Bay Fee 1, Port Barre, dr 4125 ft salt. Elbof Explorations, Inc.'s Henry Smith 1, dr 2515 ft sand.

ST. MARTIN PARISH—Rycade's State 3, Bayou Bouillon, dr 1993 ft gbo; Bayou Bouillon Fee 6, dr 3200 ft sandy shale; Bayou Bouillon Fee 7, ru; Bayou Bouillon Fee 8, dr 4035 ft sandy lime; Atchafalaya Fee 5, drk. Ohio Oil Co.'s Martin et al 3, Hager dome, bailing at 4480 ft, oil show; Burke 3, lcn. The Texas Co.'s St. Martin Land Co. 1, Hager dome, ru; St. Martin Land Co. Fee 2, lcn.

ST. MARY PARISH—J. McMurrey et al's Blue 1, Charenton, sd 3100 ft.

ST. TAMMANY PARISH—Pearl Oil Corp.'s Fritsche 1, Slidell, abn 2020 ft.

TANGIPAHOA PARISH—Tanli Oil Co.'s Weinberger 2, sd 4050 ft. Joan Dev. Co.'s Superior Piling Co. 1, dr 950 ft.

TERREBONNE PARISH — Southern Gas Co.'s Peoples Sugar Co. 1, Houma, sd 2287 ft. The Texas Co.'s Lake Barre 1, dr 450 ft; Lake Pelto B-1, moving in; Four Isle Bayou B-1, canal completed; Timbalier Bay A-1, bldg drk; Bay Coon Road B-1, canal completed; Dog Lake Bayou A-1, set surface cas.

RELYT

Lapweld Boiler Tubes

Open Hearth Steel and Special Alloy Steels

Recommended for all oil country uses.

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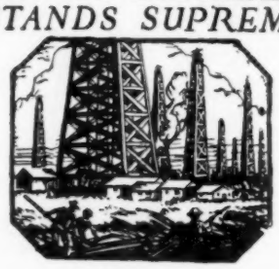

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THE ANDREWS STEEL CO

NEWPORT KENTUCKY

Say you saw it in The OIL WEEKLY

THE ROMANCE OF OIL

(Number Two of a Series)

The Discovery Well

In a little farmhouse by the side of the road sits the careworn and tired figure of a mother unable in the confusion to realize that the days of bending over a tub are over and luxuries of the world now belong to her and the children for whom she has struggled.

Out on the derrick floor work a tired crew too busy in the excitement to get the rest and sleep which they deserve. Tired but contented they are, for fame and bonus and the pride of work well done belongs to them.

Speeding by car and rail and plane are scouts and oil men from everywhere to be at the scene of the next big play.

Mixed with the fraternity and a part of the rush are the cafe men, the jitney haulers, and the real estate agents, teamsters, showmen, professional men of all kinds, barbers, adventurers, people from every strata of life.

Financial men, in hasty conference, compute the effect in the terms of world affairs, and the whole of business seems affected.

And all because a wildcat has become a discovery well. One day it was white and new, only a thing of hope. The next it is black and dripping, the focus of world attention.

HERCULES SUPPLY COMPANY

J·T·McCARTHY JR

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When the well comes in there is need for new equipment. Pipe and valves and tongs and more pipe and all manner of tools are needed and needed quick. And nothing is too good for the "discovery well." A Hercules Store, fully stocked, can take care of the driller from a new rig to the smallest item needed on the derrick floor.

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The FAVORITE Reversible Ratchet WRENCH

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Motion continuous until nut is seated or removed.
Opening through head allows bolt to pass clear through.
Reverse motion instantaneous by simply turning pawl.
Can be used in narrower places than an ordinary wrench.

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Sole Manufacturers
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STRUCTURE of TYPICAL AMERICAN OIL FIELDS
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Thirty-nine authors describe sixty typical fields in thirteen states: Arkansas, California, Indiana, Kansas, Kentucky, Louisiana, Michigan, New Mexico, Ohio, Oklahoma, Tennessee, Texas and West Virginia.

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American Association of Petroleum Geologists
Box 1852, Tulsa, Oklahoma

NORTHERN CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
TULARE COUNTY—		
Angiola Development Co.'s 1, 27-22-23	*	5500

KERN COUNTY

BELRIDGE—H. J. Bardwell's 1, 24-28-20, co 1010 ft.

BENA—Elmer Oil Co.'s 1, 15-30-30, dr shale 900 ft.

BUTTONWILLOW—Doheny-Stone Drilling Corp.'s Salisbury 1, 7-29-24, fsh for dr pipe 4750 ft. Richfield's Kerwin 1, plugged to 3750 ft; Redding 1, 36-27-23, dr 4315 ft.

EDISON—Symark Oil Co.'s 1, 24-29-29, rigging up rotary.

GOULD HILLS—Bonike and Ball's Larson 1, 19-29-20, dr brown shale 2366 ft. Elmer Oil Co.'s 1, 2-29-20, rigging rotary, td 1850 ft. Ozena Oil Co.'s 1, fsh 2930 ft.

KERN RIVER—Richfield's Boston 1, 20-28-28, dr shale 2150 ft. F. M. Sayre's 1, 8-28-28, dr 450 ft.

LERDO—Shell Oil Co.'s A-1, 5-29-27, rig completed.

McFARLAND—General Pet. Corp.'s 1, 25-26-25, rig completed.

McKITTRICK—The Texas Co.'s Aldridge 1, 4-30-22, dr gray sand 4810 ft.

ROSEDALE—Elmer Oil Co.'s 1, 33-29-26, dr shale 1236 ft.

SHALE HILLS—Day Oil Co.'s 1, 1-27-18, will deepen from 600 ft. Gilbert Oil Co.'s 1, 35-26-18, ready to re-dr from 750 ft.

SAN EMIDIO—Union's KCL-2, 5-10-21, dr shale 2150 ft.

SANTA BARBARA COUNTY

CARPERTERIA—Continental's Franklin 1, dr 4100 ft.

GOLETA—Elwood Consolidated's Rekar 1, 8-4-29, re-cmt 3310 ft. F. A. Anderson's Langham 1, dr shale 1930 ft.

ELWOOD—General Pet. Corp.'s Moore 1, 21-4-28, rigging rotary. Olympic Oil & Refining Co.'s Palisades 1, 29-4-27, dr shale 2335 ft.

ORELLA—Shell Oil Co.'s Rutherford 1, 36-5-31, dr shale 2833 ft.

POINT CONCEPCION—Standard's Gerber 1, dr hard sand 1620 ft.

SANTA BARBARA—Channell Oil & Development Co.'s F-1, 29-4-27, dr shale 310 ft. Exeter Oil Co.'s Duncan Ranch 1, dr shale 2000 ft. Padre Oil Co.'s Dos Pueblos 1, 8-4-29, dr sand and shale 1600 ft. Bankline Oil Co.'s Duncan Ranch 1, dr 3636 ft.

SANTA MARIA—Shell Oil Co.'s Union Sugar 1-A, 25-10-35, sr 2635 ft; Union Sugar 2, 26-10-35, rigging up.

SUMMERLAND—American Oil Developers' 1, dr 200 ft.

TORTUGA CANYON—Standard's Schyvers 1, dr hard sand 1772 ft.

VENTURA COUNTY

CAMARILLO—American Oil Co.'s 1, 33-2-20, dr sand 960 ft.

CONEJO—Triunfo Oil Co.'s 1, 24-1-19, dr shale 833 ft.

FILLMORE—Frank Oil Co.'s 1, 35-4-20, dr shale 966 ft. Federal Oil Co.'s Elkins 1, 5-3-19, cmt 6⅝-in cas 3380 ft.

HUENEME—The Texas Co.'s Eastwood 1, dr shale 200 ft.

OJAI — Continental's Thompson 1-A, dr shale 6323 ft. Miley Oil Co.'s Casitas 2-A, 12-3-24, dr shale 922 ft.

PIRU—Pacific Western Oil Co.'s Tehmescal 5, 3-4-29, trying for water shutoff, ta 3595 ft.

SANTA PAULA—W. W. Bryant's Anlauf 3, 21-4-21, sr shale 830 ft. San Pedro-Pt. Fermin Syn.'s Kellerman 1, 13-4-21, sr to run cas 722 ft.

SATICOY—Standard's Citrus 5, 10-2-22, dr hard sand 5220 ft.

SESPE—The Texas Co.'s McGuire 1, 2-3-19, dr shale 200 ft.

SIMI—Shell Oil Co.'s Marr 1, 31-3-17, sr 2470 ft.

SOUTH MOUNTAIN—F. A. Craise's S-1, laying water lines. Ring Pet. Corp.'s Converse 1, 23-3-21, co 4840 ft.

MISCELLANEOUS

FRESNO COUNTY—Currency Pet. Co.'s 1, 28-21-14, dr shale 1610 ft.

KINGS COUNTY—Dudley Ridge Oil Co.'s 1, 12-23-19, fsh 1450 ft.

MERCED COUNTY—Applegate and Renshaw's 1, 24-6-10, dr shale 3177 ft. H. L. Kuhn's 3, 8-12-19, dr hard sand 300 ft.

MONTEREY COUNTY — Shell Oil Co.'s Dudley 1, 15-22-19, sr 1450 ft.

SAN LUIS OBISPO COUNTY — L. E. Bering's 1, 13-32-22, dr shale 865 ft. Dollar Oil Co.'s H-K 1-A, 18-31-22, dr shale 800 ft; Phelps 1, 18-31-22, lcn. Panorama Oil Co.'s 1, 7-31-21, co 3430 ft. Oremo Oil Co.'s 1, 5-32-13, rig. T. H. Purman's 1, 12-32-22, dr 2466 ft. Texas Pacific Coal and Oil Co.'s Dutton 1, 25-32-14, fsh 916 ft. Union's Russ 1, dr shale 3266 ft; Chandler 1, sr 2930 ft.

TULARE COUNTY — Big Four Drilling Co.'s 1, 29-23-27, fsh for 4½-in cas, td 4330 ft.

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
GALVESTON COUNTY—		
Republic Prod. Co., Lobit 1, 1 mi nw Dickinson	*	4865
HARDIN COUNTY—		
Gaddy Oil Co., Sterneberg 2, 4 mi nw Kountze	*	1000
JEFFERSON COUNTY—		
Gaddy Oil Co., Russell 1, 2 mi nw Beaumont	*	1000
LAVACA COUNTY—		
The Texas Co., Russeck 1, 6 mi s Ezzell	*	4050
VICTORIA COUNTY—		
Humble, Welder A-3, 2 mi ne Nursery	*	890

AUSTIN COUNTY—Raccoon Bend; Humble O. & R. Co. and Valley Oil Corporation's Snell 1, lcn; Washington B-1, lcn; E. B. Wilson 4, dr sandy shale and lime at 612 ft; Wilson Hrs. 1 dr 1108 ft hard sand; Mueller 1, dr 1533 ft sandy shale; R. Dietrich 2, dr 3154 ft hard shale; Hardy 3, dr 2664 ft shale and sand; Hardy 4, lcn; Buchanan 1, set cas at 1225 ft; Washington A-2, dr 885 ft rock; A. Grawunder C-1, completed as 60-bbl pumper at 3388 ft; Sherrill 1, dr 3343 ft sand and shale; Urban 3, dr 3031 ft sandy shale; R. Thompson 3, dr 2306 ft sand; E. Kearns 2, set screen at 3461 ft, washing; Sanders 2, dr 1850 ft sandy shale; E. Grawunder D-1, dr 2107 ft sticky shale. F. & M. Drilling Co.'s Mewis 1, w of Raccoon Bend, ru.

BRAZORIA COUNTY—Humphreys Corp.'s Bryan 1, Bryan Heights, dr 2763 ft sand and lime.

CALHOUN COUNTY—Baker & Thompson's Thomas 1, 10 mi w Pt. Lavaca, fsh 2730 ft.

CHAMBERS COUNTY—Pure's Mayes 1, Lost Lake, completed for an estimated 30 million ft gas at 2079 ft. Gulf's Wilborn 1, Hankamer, dr 5710 ft sand and shale; Barbers Hill. Mills Bennett Prod. Co.'s Smith 2, dr 2695 ft gbo; Kirby 2, dr 5346 ft sand and shale; E. W. Barber 1, dr 2380 ft sand and shale. Mills Bennett-Republic Prod. Co.'s Means 1, dr 5111 ft shale. Humphreys Corp.'s Kirby B-6, sdtr 5809 ft; Tarbutton 1, dr 271 ft sand and boulders; Kirby A-1, ru. J. F. Bashara's Tarbutton 1, 5190 ft depth. Sun's Chambers Co. Agri. Ass'n 1, dr 4751 ft rock; Chambers Co. Agri. Ass'n 2, fsh 5105 ft. Yount-Lee Oil Co.'s Chambers Co. Agri. Ass'n 2, completed for 1100 bbls at 5329 ft; Chambers Co. Agri. Ass'n 3, oil sand at 5100-5170 ft; Richardson 4, abandoned at 2285 ft. Carpenter & Eunice's Feldman 1, dr 1020 ft gbo. Tolbert et al's Ilfrey 1, dr 1100 ft gbo.

COLORADO COUNTY—The Texas Co.'s Kinkler 1, Cat Springs, lcn. Shell's Neundorff 1, 1 mi se Bernado, dr 1300 ft gbo. Humble's Binkley 1, Altair, dr 600 ft shale. Merrett et al's Zverck 1, 2 mi e Ellinger, sd 320 ft.

FAYETTE COUNTY—Phalen et al's Cervanca 1, 6 mi s La Grange, sd at 3775 ft. Moore et al's Kerr 1, Muldoon, sd 2078 ft. National Oil Co.'s Melcher 1, Plum, dr 2780 ft shale.

FORT BEND COUNTY—Sun Oil Co.'s E. C. Farmer 4, Boling, temp. abn at 3895 ft; H. R. Farmer 4, Boling, drk; Rodgers 2, Boling, depth 4160 ft. The Texas Co.'s Dippel B-1, Boling, completed for 115 bbls at 3735 ft; Pleasants 1, Boling, dr 2235 ft sand; E. C. Farmer 2, Boling, dr 3792 ft sandy shale and lime. Gulf's Moore 18, Moores Field, dr 3900 ft sand and shale; Trone 11, Long Point, dr 930 ft sand and shale. Boling Dome Oil Corp.'s Armstrong 1, Boling, cored and drilled blue shale

IT'S SERVICE THAT COUNTS

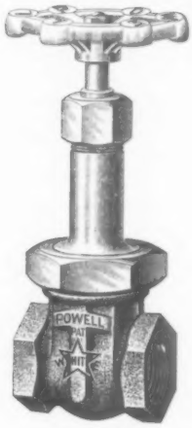

Fig. 375
"White Star"
Gate Valve

Fig. 460
"Pilot" Gate Valve

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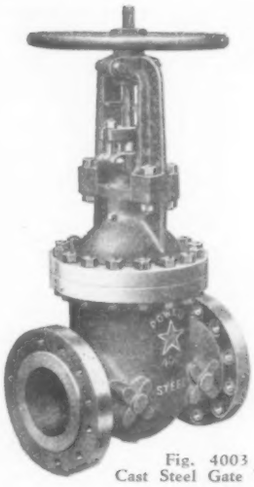

Fig. 4003
Cast Steel Gate Valve

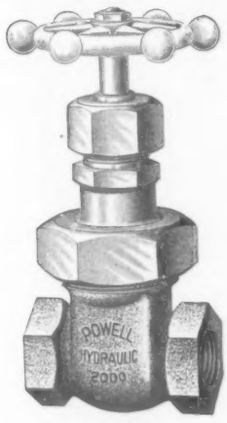

Fig. 178
Hydraulic Gate Valve

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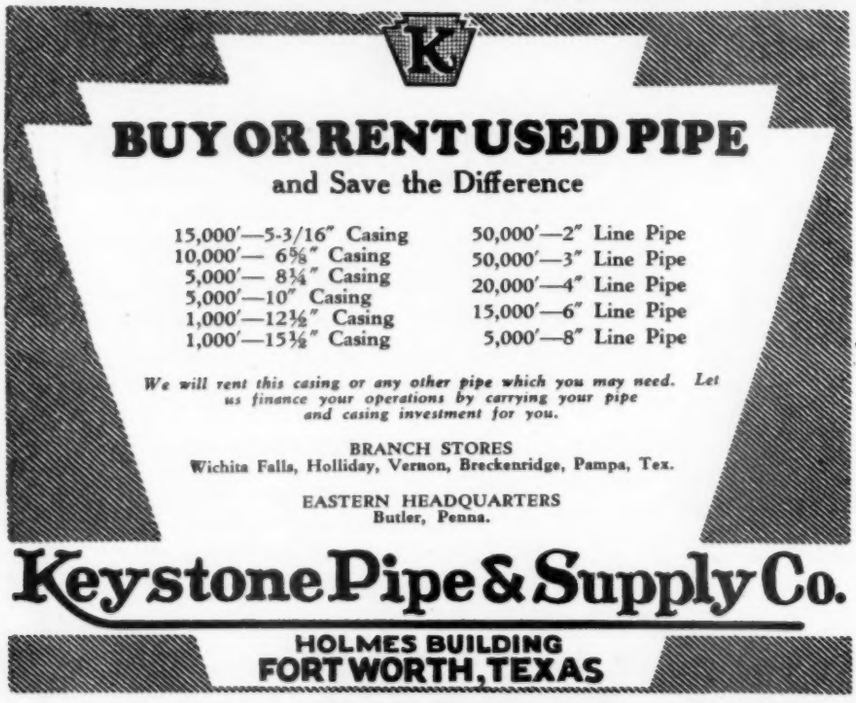
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at 5040 ft. Sugarland: Humble's Brazos Farms 2, completed for 1400 bbls at 3611 ft; Brazos Farms 3, set cas at 3336 ft; Brazos Farms 4, set cas at 3263 ft; Brazos Farms 5, dr 2720 ft hard sandy lime; Sugarland Industries 5, completed for 1500 bbls at 3745 ft; Sugarland Industries 6, set cas at 3600 ft; Sugarland Industries 7, ru; Nelson 2, dr 2635 ft shale and lime; Bankers Mtge A-1 set cas 3250 ft; Camp 3, dr 1395 ft gbo. South Texas Exp. Co.'s Hartfield 1, Needville, dr 6725 ft hard shale.

GALVESTON COUNTY—Long et al's Irvin & Bishop 1, 2 mi s Dickinson, sd 4322 ft. Republic Prod. Co.'s Lobit 1, 1 mi nw Dickinson, abn at 4875 ft.

GOLIAD COUNTY—Booth & McCarson's Murry 1, Goliad townsite, sd 1460 ft. Humble's Rietz 1, 3 mi n Goliad, lcn.

HARDIN COUNTY—Gaddy Oil Co.'s Sternenberg 2, 4 mi nw Kountze, abn 1000 ft. Guedry Drlg. Co.'s Guedry 1, 3 mi s Batson, drk.

HARRIS COUNTY—Torsen et al's Stewart 1, 4 mi sw Genoa, sd 691 ft. Hunt et al's Lobit 1, 4 mi n Goose Creek, sd 2145 ft. Humble's Simms-Smith 75, Goose Creek, sdtr 3480 ft; Warren 5, Hockley, dr 3490 ft; Williams 1, Humble, dr 1750 ft gbo; W. H. Irvin 1, Mykawa, ru. Paxton et al's Brubacker 1, 1 mi ne Clodine, sd 1125 ft. Paxton & Pundt's Brown 1, ru. South Texas Pet. Co.'s Morris 3, Humble, came in for 4500 bbls at 4838 ft when screen was set. Little York Oil Co.'s Davis 1, Little York, dr 2975 ft lime and shale. The Texas Co.'s House 22, Humble, dr 4715 ft shale and sand; Stevenson 39, Humble, trying to kill salt water flow, depth 4436 ft. Baldwin & Neyland's Kitzman 1, 2 mi n Cypress, dr 3830 ft sand and shale. Brains et al's Lentze 1, 4 mi s Tom Ball, sd 1120 ft.

JACKSON COUNTY—The Texas Co.'s Moore 1, Edna, dr 3465 ft shale. Wright Bros.' Drushell 8, Edna, drk; Classen 2, Edna, sd 3945 ft.

JEFFERSON COUNTY—Deep Test Oil Corp.'s McFaddin 1, 6000 ft e Spindle Top, setting screen at 3505 ft. J. W. Farhar et al's Rohwedder 1, 5 mi ne Beaumont, dr 2855 ft gbo. Gaddy Oil Co.'s Russell 1, 2 mi nw Beaumont, abn at 1050 ft. Beaumont Oil Co.'s Tyrrell 1, 2 mi w Brooks, drk. River Oil Co.'s Ship Channel Ld. Co. 1, 2 mi se Beaumont, testing sand at 1320 ft. Bleakie Oil Co.'s Tolliver 1, 2½ mi nw Voth, dr 1750 ft gbo. The Texas Co.'s Pipkin 1, Big Hill, dr 5200 ft sand. Gulf's Thomas 11, Fannett, dr 3150 ft sand and shale; Bordages A17, Fannett, dr 3090 ft sand and lime; Bordages A-6, dr 5500 ft. Yount-Lee Oil Co.'s Nona Mills 1, 5 mi s Beaumont, dr 4410 ft shale. Shell's Heisig 1, 2 mi n Hampshire, moving in drilling equipment.

LAVACA COUNTY—The Texas Co.'s Russek 1, 6 mi s Ezell, abn at 4050 ft.

LIBERTY COUNTY—Barlow et al's Hinchcliff 1, 2½ mi ne Cleveland, sd 2215 ft. Kouri et al's Campbell 1, 6 mi s Cleveland, sd 2000 ft. Big Dome Interests' Finley 2, 3 mi nw Hardin, drk. The Texas Co.'s Davis 2, Davis Hill, dr 3610 ft gbo. Pickett 3, n end S. Liberty, dr 4375 ft sand and shale; Green 5, n end S. Liberty, dr 1823 ft gbo. Humble's Sterling 4, Moss Bluff, dr 2470 ft sandy lime. Union Explo. Co.'s Esperson 2, 2 mi s Sheeks, dr 4430 ft gbo. Tan Bay Oil Co.'s Christian 1, 10 mi n Hardin, sd 1115 ft. Republic Prod. Co.'s Mysilvec 1, 2 mi s Hardin, ru.

MATAGORDA COUNTY—Crossland et al's Hawkins 1, Shepherds Mott, dr 4170 ft sand and shale. Rycade-Humble's Kuntze A-6, dr 3250 ft. Dr. P. S. Griffith's Culver 1, e Citrus Grove, sd 3215 ft; O. Baer 1, 1½ mi n Gulf Hill, dr 2063 ft gbo. West Prod. Co.'s Meyers 1, Markham, dr 2100 ft rock.

ORANGE COUNTY—Veteran Oil Co.'s Reed 1, 2 mi se Orange fld, sd 2730 ft. The Texas Co.'s Kuhn 1, 4 mi e Spindle Top, dr 2010 ft gbo.

REFUGIO COUNTY—Blanco Oil Co.'s St. John 1, 3 mi nw Refugio, sd 2553 ft. Magnolia's Glenewinkle 1, nw of Refugio prod., plugging back to 1800 ft. Houston Oil Co.'s Wilson Heard 5, Refugio, completed for 750 bbls at 3692 ft.

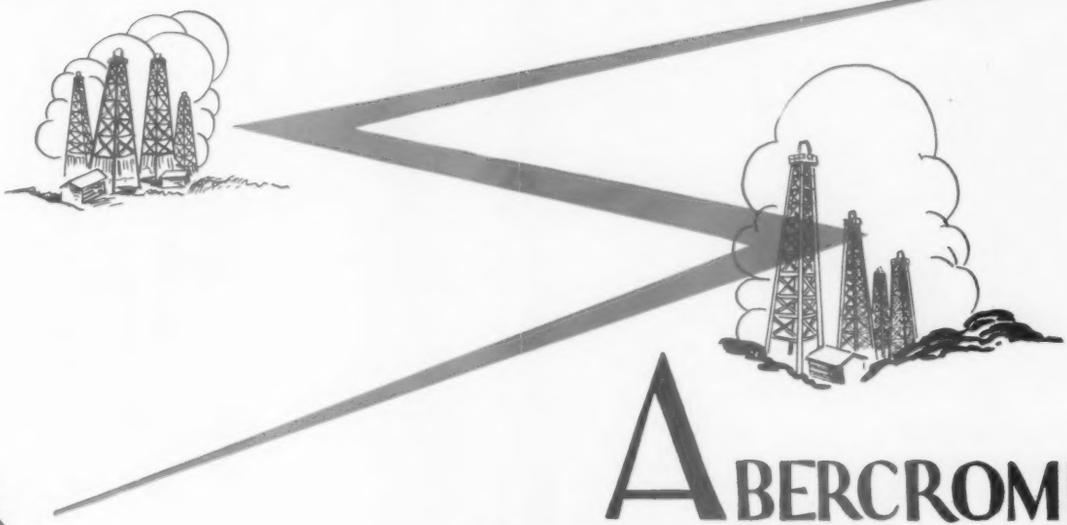
VICTORIA COUNTY—Humble's Welder 1, 3 mi se Nursery, drk.

WALLER COUNTY—Dixie O. & G. Co.'s Brazos River State 1, San Felipe, sd 500 ft. The Texas Co.'s Young 1, 3 mi e Raccoon Bend, dr 1375 ft water sand.

WASHINGTON COUNTY—Sun Oil Co.'s

UNDAMAGED

JSA. NO 4



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616-18 West Bldg. Houston, Texas

Say you saw it in The OIL WEEKLY

Schlottman 1, Clay Creek, dr 1575 ft; Mrs. J. Grote 2, dr 2520 ft; G. F. Grote 4, lcn; G. F Grote 7, lcn; Witt 2, dr 820 ft sand and shale; Schirmer 2, dr 1575 ft sand. Davis et al's Seward 1, ½ mi n Independence, sd 1765 ft. Thomas et al's Giddings 1, 4 mi e Brenham, lcn. W. D. Anderson's Rubenstein 1, 4 mi se Gay Hill, sd 340 ft.

WHARTON COUNTY—Hearte Oil Co.'s Brown 1, 3 mi e El Campo, dr 2165 ft.

SOUTHERN CALIFORNIA

Completions

GARDEN GROVE—
Texas Co.'s Crawford 1, 35-4-10.... * 5340

CALABASAS — Pugh-Miller Drilling Co.'s Colyear, 6-1-17, new lcn.

CHATSWORTH—Russell Pet. Co.'s Joughin 2, dr gray sand 1275 ft.

COSTA MESA—Mesa Pet. Corp.'s B. A. 1, dr hard sand 3830 ft.

DEVILS CANYON — Coastline Oil Co.'s Mazie 1, SW¼ 21-5-17, new lcn.

DOWNEY—Rio Grande Oil Co.'s Osborne 1, 34-2-12, dr hard sand 4740 ft.

FULLERTON—Shell Oil Co.'s Stern 1, dr brown shale 6715 ft.

HAWTHORNE—Standard Oil Co.'s Freeman 1, new lcn.

INGLEWOOD—James Pollard's Cal-Eastern 1, dr gray sand 4400 ft. Max Pray's 1, ready to spud. Ring Pet. Corp.'s Simon 1-A, dr shale 4010 ft.

LYNWOOD—Western Drilling & Producing Co.'s Carlin-Smith 1, dr sandy shale 4166 ft.

MAYWOOD—Richfield's Vernon 1, dr gray sand 5622 ft.

POMONA—Pomona Oil Assn.'s 1, 32-1-18, dr hard sand 1022 ft.

PUENTE—Richfield's Didier 1, dr hard sand 3930 ft.

TELEGRAPH CANYON—Union's Rimpau 1, bldg roads.

VENICE—Ohio Oil Co.'s Del Rey Water Co. 1, 22-2-15, rig.

RIVERSIDE COUNTY—Trabuco Oil Co.'s 1, dr limestone 3666 ft.

SAN BERNARDINO COUNTY — Mahala Oil and Gas Co.'s 1, 13-3-8, fsh for 6¼-inch cas 4000 ft.

SAN DIEGO COUNTY—Western Pacific Oil Co.'s 3, will make test, td 3365 ft. S. S. Turner's Baler 1, dr hard sand 1736 ft.

IMPERIAL COUNTY—Imperial Valley Pet. Co.'s 1, dr shells 2522 ft.

WEST TEXAS

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CROCKETT COUNTY—		
W. W. Donnelly-W. A. Moncrief et al, Todd 2	*	2050
GARZA COUNTY—		
Emerald Oil Co., J. M. Boren 4	50	2573
GLASSCOCK COUNTY—		
White Eagle O&R Co., Dunbar 1 ..	*	3655
IRION COUNTY—		
Pecos Valley Oil Co., Joe Stock 1..	*	1296
MENARD COUNTY—		
Carl G. Cromwell et al, Wilhelm 1	*	3150
MITCHELL COUNTY—		
Simms Oil Co., Ellwood 2	¶4	597
NOLAN COUNTY—		
C. M. Root Drlg. Co., Simpson 1....	*	3165
PECOS COUNTY—		
McCarty Oil Co., A. A. Gray 1....	15	1195
TAYLOR COUNTY—		
Grisham-Hunter Corp., Campbell 1..	*	2780
L. H. Wentz et al, Armour 1	*	2300

ANDREWS COUNTY—Deep Rock Oil Co.'s Hostetter 1, elev 3224 ft, top salt 1890 ft, set 6-inch cas 3840 ft. Mid-Continent Pet. Corp.'s Fisher 1, dr 450 ft.

BORDEN COUNTY—Gibson-Johnson et al's Higginbotham 1, dr 445 ft. Greene O&R Co.'s Slaughter 1, elev 2556 ft, dr 815 ft. C. E. Hyde et al's Beal 1, elev 2407 ft, top salt 1105 ft, dr 1210 ft. Teas & Wheeler's Long 1, lcn.

BREWSTER COUNTY—Ed. W. Bateman & Co.'s Nevill 1, elev 3950 ft, sd 1955 ft. Brewster Oil Co.'s Fee 1, dr 1260 ft. Johnson & Bert Weekly's Jackson-Harmon 1, dr 800 ft. Forrest Oil Co.'s Skinner 1, sd hfw 1430-1500 ft.

COKE COUNTY—Cates & Dennis' J. R. Mims 1, sd 1585 ft; Mims 2, spudded and sd. Mid-Kansas O&G Co.'s Lackey 1, elev 2102 ft, dr 3480 ft. Ray McCamey et al's McCutcheon 1, spudding.

CONCHO COUNTY—J. L. Duffey et al's Lovelace-Lockhart 1, sd 1250 ft. Jones & Liner's Jones 1, sd 660 ft.

CRANE COUNTY—Gulf Prod. Co.'s Waddell 6, elev 2733 ft, top salt 1270 ft, top lime 3147 ft, plugging back after shot from 3480 ft; Waddell 7, rig.

CROCKETT COUNTY — W. W. Donnelly-W. A. Moncrief et al's Massey-Todd 1, lcn; Todd 1, (Sec. 35) ur 657 ft. Donnelly & Young's Shannon 1, (Sec. 42), fsh 640 ft. Eppenauer Drlg. Co. & West Texas Pet. Corp.'s Noelke 1, spudded and sd. Lewis & Daniels' Pecos River Bed 1, elev 1967 ft, sd 600 ft. Tidal Oil Co.'s Weatherred 1, elev 2329 ft, top salt 485 ft, cased off water 1693 ft, dr 1743 ft. J. D. Wheeler et al's State 1, elev 2326 ft, top salt 492 ft, dr 1025 ft.

CULBERSON COUNTY — Deep Rock Oil Co. & Grisham-Hunter Corp.'s Kloh 1, dr 1105 ft. Hickey et al's Finley 1, elev 3916 ft, sd 1780 ft.

JEFF DAVIS COUNTY—Sam F. Means et al's J. Z. Means 1, sd 4005 ft.

FISHER COUNTY—Bickerstaff et al's McWhirter 1, elev 1932 ft, sd 2000 ft. Cranfill-Reynolds & Sun Oil Co.'s Fleming 1, elev 1803 ft, top lime 3135 ft, sd hfw, 3218 ft; B. F. Willingham 2, elev 1808 ft, testing oil pay 3129-54 ft. Culberson Bros. & Mesa Oil Co.'s Griffin 1, dr 1565 ft. J. B. Dunigan et al's Henry 1, elev 1913 ft, dr 2840 ft. Gilman-McMurray & French's Cleveland 1, elev 1973 ft, dr 2430 ft. Landreth Prod. Corp.'s Cooper 1, elev 1825 ft, top lime 2760 ft, dr 3358 ft. Bob Rainey et al's Marberry 2, elev 1929 ft, top lime 2995 ft, sd 3507 ft. Roeser-Pendleton & Amerada's Haught 1, ur 1425 ft. The Texas Co. & Phillips Pet. Co.'s W. H. Hall 1, elev 2102 ft, co 1535 ft. White Eagle O&R Co.'s Hughes 1, dr 245 ft.

GAINES COUNTY — Pure Oil Co.'s Williamson 1, elev 3197 ft, top salt 2333 ft, fsh 4124 ft.

GARZA COUNTY—Emerald Oil Co.'s J. S. Reed 1, lcn.

GLASSCOCK COUNTY — Kyle & Daniels' Meek 1, elev 2792 ft, sd 405 ft. Gibson-Johnson et al's Mann 1, elev 2703 ft, top salt 1170 ft, top lime 2640 ft, sd 3448 ft. Merriwether Oil Co.'s McDowell 2, elev 2517 ft, top salt 970 ft, top lime 2445 ft, dr 3095 ft. Penn Oil Co.'s & Empire G&F Co.'s Hughes 1, elev 2733 ft, top lime 2335 ft, dr 2850 ft. World Oil Co.'s McDowell 1-C, elev 2530 ft, dr 1990 ft.

TOM GREEN COUNTY—F. P. Green et al's Fee 1, sd 1931 ft. Williams et al's Wilkey 1, dr 645 ft.

HOWARD COUNTY — Gibson-Johnson et al's H. N. Reed 1, lcn.

HUDSPETH COUNTY — The California Co.'s University 1, elev 5833 ft, co 649 ft. Lockhart Bros. et al's Western States 1, spudded and sd. Western States Oil Co.'s Gardner-Mosely 1, elev 5086 ft, sd 3155 ft; Moore 1, elev 5150 ft, sd 2760 ft.

IRION COUNTY — Furhman Pet. Corp.'s Sugg 1, Lse. 2, machine. Kimbrough et al's Nutt 1, elev 2299 ft, sd 1420 ft. Kimbrough & Flinchbaugh's Tankersley 1, elev 2241 ft, dr 815 ft. Kingwood Oil Co.'s Sugg 1, elev 2334 ft, co to dd, td 5875 ft. Signal Oil Co.'s Sugg 2, elev 2498 ft, top salt 760 ft, top lime 1470 ft, dr 2470 ft. Webb et al's Nutt 1, elev 2351 ft, dr 3320 ft.

JONES COUNTY—W. G. Clark et al's Collins 1, lcn. Condor Pet .Co.'s McDonald 1, spudding. Culberson Bros. et al's Anderson 1, lcn. E. P. Campbell et al's Herndon 2, elev 1807 ft, sd 2600 ft. Grisham-Hunter Corp.'s Hester 1, elev 1861 ft, dr 1200 ft. P. K. French et al's Leeson 1, spudded and sd. McClanahan et al's Hall 1, elev 1631 ft, rated as 20 bbl pumper after shot 10 qts. 1832-43 ft. McGinley-Sigler Co.'s Whittemore 1, fsh 1650 ft; Martin 1, sd 1515 ft. McNeeley et al's Bland 1, spudded and sd. Mid-Sun Oil Corp.'s Hoehn 1, elev 1899 ft, top lime 2641 and 2880 ft, ur with show oil 2885-86 ft. Roeser-Pendleton et al's Castle 1, elev 1865 ft, top lime 2653 ft, dr 2665 ft. Sedgwick O&G Co.'s Brown 1, lcn; Routh 1, elev 1730 ft, dr hfw 2505 ft. Tomberlin et al's Horn 1, spudded and sd. Wells et al's Britton 1, rig. White Eagle O&R Co.'s Teague 1, lcn.

KING COUNTY—Huff Oil Co.'s Martin 1, rig.

LOVING COUNTY—Lockhart & Co.'s Hazell 1, elev 2705 ft, rig; Johnson 1, rig; H. L. Lepp 1, top salt 725 ft, dr 3130 ft; Hubbard Heirs 1, elev 2706 ft, top sand 700 ft, co 2621 ft; Hubbard 2, rig; J. J. Wheat 1-H, dr 435 ft.

LYNN COUNTY—Hart Oil Corp. & McCamey's Edwards 1, elev 3128 ft, sd 915 ft. H. F. Miller et al's May 1, spudded and sd.

MENARD COUNTY—J. B. Holstein et al's Davis 1, lcn.

MIDLAND COUNTY — Phillips Pet. Co.'s J. V. Stokes 1, spudding.

MITCHELL COUNTY — The California Co.'s J. W. Clark 2, rig. Clopton & Harmon's McKenzie 1, lcn. H. H. Adams et al's Ellwood 1-A and 1-B, lcns. McGinley-Sigler Co.'s Scott 1, set cas 601 ft. Republic Prod. Co.'s Scott 1, lcn. Simms Oil Co.'s Ellwood 1, elev 2237 ft, top lime 1405 or 1445 ft, dr 1520 ft; Ellwood 1-B, lcn. Teas & Wheeler's Radford 1, elev 2223 ft, top salt 667 ft, top lime 1365 ft, crooked hole 4030 ft. Westyde Investment Co.'s Ellwood 1, dk.

NOLAN COUNTY—L. G. Bradstreet et al's Kuteman 1, rig.

PECOS COUNTY—Atlantic Oil Prod. Co.'s J. C. Trees 1, cellar. Benedum-Trees et al's Corder 1-A, elev 2713 ft, top lime 1840 ft, dr 3665 ft. M. H. Black et al's Pecos 1, machine. Buell-Hagan et al's University 1-B, lcn. A. R. Bell, et al's Gray 1, spudding. Karl L. Crowley et al's R. G. Heiner 1, ur 10-inch cas 665 ft. Doran & McGee's Pecos 1, spudded and sd. Cowboy Evans et al's Pecos 1, lcn. Spot Geyer et al's B. F. Smith 1, dr 600 ft. J. W. Grant et al's Turney 1, elev 2592 ft, top lime 1015 ft, sd 4590 ft. Grayburg Oil Co.'s University 1, elev 2725 ft, top salt 990 ft, top lime 1670 ft, dr 1845 ft. Imperial Oil & Gas Co.'s Pecos 1, lcn. Sam Kitts et al's Sherbino 1, dk. Marland Prod. Co.'s Blakeslee 1, elev 2448 ft, top salt 1380 ft, dr hfw 2380 ft. Mauch & Krogen's Holmes 1, elev 2325 ft, top salt 535 ft, sd 1010 ft. R. A. Moore et al's R. W. Arnold 1, lcn. W. A. Moncrief et al's Tippett unit plan 1, lcn. J. D. O'Hara et al's L. L. Byrne 1-A, skid rig, dr 135 ft. Perren et al's Eaton 1, dr 845 ft. Phillips Pet. Co.'s Courtney 1, spudding. Schumaker et al's Williams 1, elev 2388 ft, sd 700 ft. Shell Pet. Corp. & Kirby Pet. Co.'s University 1, elev 2628 ft, dr 4315 ft. Southern Crude Oil Pur. Co.'s Scarbauer 1, elev 3680 ft, dr 4140 ft. Stein & McGee's Pecos 1, lcn. Tidal Oil Co.'s University 1, materials. Transcontinental's University 1, elev 2552 ft, top lime 1035 ft, dr 4275 ft; White & Baker 1, rig. Trees Oil Co.'s J. C. Trees 1, dr 975 ft. Bert Weekly et al's Byrne 1, spudded and sd.

PRESIDIO COUNTY—Brite Prod. Co.'s L. C. Brite 1, fsh with hfw 700 ft. C. E. Miller-Delmar & Phillips Pet. Co.'s Tootle 1, co 2340 ft.

REAGAN COUNTY — The California Co.'s University 5, elev 2879 ft, top salt 1280 ft, top lime 2943 ft, dr 3030 ft. Kemrow & Co.'s Sawyer 1, lcn. Skelly Oil Co. & Utah Southern's University 4, dk. Oberholtzer & Carl Cromwell's Talley 1, top salt 1005 ft, dr 1870 ft.

REEVES COUNTY—Penn Oil Co.'s Bowles 1, elev 2783 ft, top salt 1725 to 4425 ft, sd 5000 ft. Southern Crude & Dixie Oil Co.'s Kloh 1, dr 1045 ft. Lee O. White et al's Kloh 1, elev 3244 ft, crooked hole 250 ft.

RUNNELS COUNTY—G. W. Boyce et al's Lange 1, sd 1350 ft. Herbert Oil Co. et al's Currie 1, dr 410 ft. Huff Oil Co.'s Fergurson 1, dk. Independent O&G Co.'s Rollwitz 1, dr 1460 ft. Marland Prod. Co.'s Herring 1, dr 2290 ft. Ira Nourse & E. Tilton's Cramer 1, elev 1775 ft, ur with hfw 3040 ft. Union Oil Co.'s Allen 1, set cas 3750 ft. Vacuum Oil Co.'s McMillan 4, lcn.

SCHLEICHER COUNTY—Ft. McKavitt Oil Co.'s Tisdale 1, elev 2155 ft, sd 1535 ft. Interstate Explo. Co.'s Whitten 1, sd 935 ft.

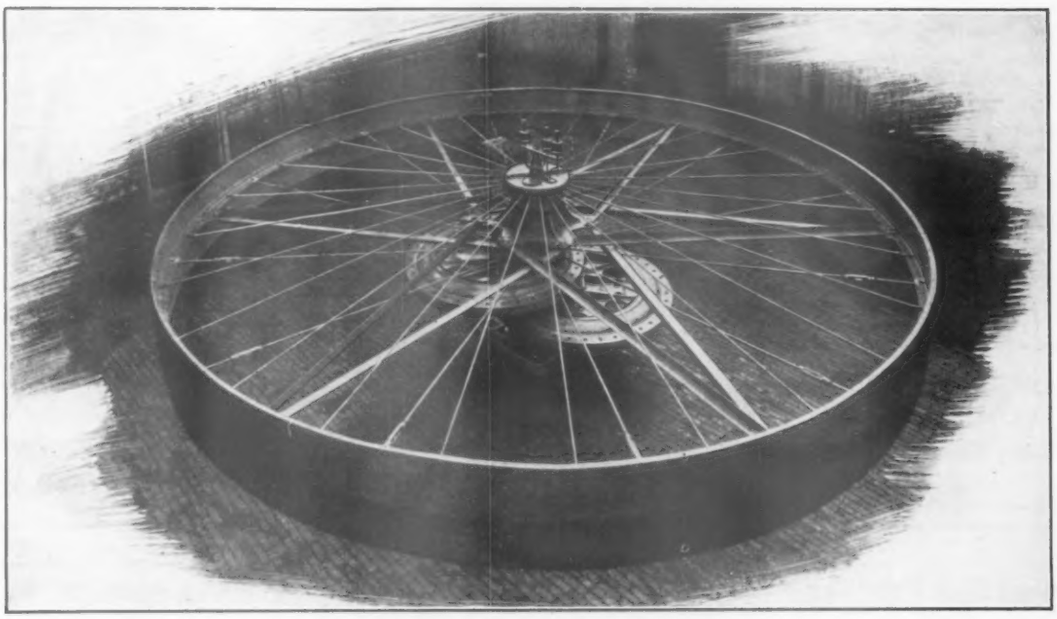
SCURRY COUNTY—R. B. Pender & Dieckman's Davis 1, elev 2208 ft, top salt 445 ft, sd 2525 ft.

STERLING COUNTY — Foster-Gracey Oil Co.'s Foster 1, elev 2260 ft, fsh 2175 ft. Miller Bros. et al's Foster 1, elev 2667 ft, top salt 1140 ft, top lime 2094 ft, set cas 2134 ft.

SUTTON COUNTY — Phillips Pet. Co.'s Holman 1, elev 2247 ft, top lime 2315 ft, dr 6155 ft. L. G. Priest et al's Allison 1, set cas 530 ft. Southern Crude & Dixie Oil Co.'s Allison 1, ur 3507 ft.

TAYLOR COUNTY—J. B. Jameson et al's Webb 1, dr 1210 ft. Mid-Continent Pet. Corp.'s

If you need 100 Horsepower



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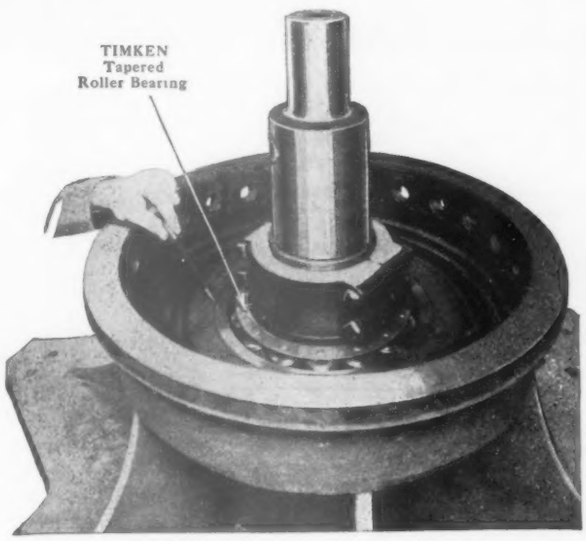

Photo showing Timken Bearing located on upper end of the power shaft.

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Attorneys at Law

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Houston, Texas

Specializing in Oil Law and Land Law

PATENTS

Patents Obtained, Trade Marks, Patent Causes

JESSE R. STONE

Formerly Assistant Examiner United States Patent Office

Andrews, Streetman, Logue & Mobley

12th Floor Union N. Bk., Houston, Texas

Taylor 1, elev 1933 ft, dr 2945 ft. Thompson et al's Hamner 1, dr 2260 ft.

TERRELL COUNTY—Milham Corp.'s Bassett 1, elev 2270 ft, sd 4635 ft. Keck-Pecos Oil Trust's Hamilton 1, elev 1733 ft, sd 1749 ft.

UPTON COUNTY—Sun Oil Co.'s R. E. Long 1, machine.

VAL VERDE COUNTY—Dyer Bros. et al's Wilson 1, elev 2115 ft, sr 2820 ft. Producers Oil Co. et al's Everett 1, dr 2225 ft. Val Vert Oil Corp.'s Bassett 1-A, elev 2069 ft, fsh 3760 ft.

WARD COUNTY — Barstow O&G Co.'s Monroe-Gillespie 1, spudded and sd. Gulf Prod. Co.'s G. W. O'Brien 4, elev 2657 ft, top salt 1290 ft, dr 2430 ft. J-H-L Oil Co.'s Hayzlett 1, elev 2522 ft, top salt 792 ft, flow 70 bbls daily 2455-78 ft; Hayzlett 2, set cas 620 ft. K. Kimberlin et al's Thompson 1, lcn. Tex-Oil Prod. Co.'s Redman 1, fsh 960 ft.

WINKLER COUNTY — M. J. Bashara et al's Fee 1, spudding. Gulf Prod. Co.'s Scarborough 1, comp. flowing 90 bbls 2987-3350 ft. Liner Drilling Co.'s Campbell 1, rig. Prairie O&G Co.'s Scarborough 1, elev 2914 ft, fsh tools with 1200 ft oih 2930-71 ft. Shell Pet. Corp. & Llano Oil Co.'s Scarborough 5, elev 2966 ft, top salt 1110 ft, trace oil 3039-51 ft, dr cavey hole 3087 ft. Texas-Canadian Oil Co. & Superior's Kloh 1, dr 970 ft.

YOAKUM COUNTY—Bert Weekly et al's Knight 1, dr red rock 850 ft.

Two Wildcats Drilling in Tennessee

Memphis, Tenn., April 1.—Two wildcat tests are under way in Decatur County, Tennessee, on the old Dunbar structure. This territory is not sectionized. Chester County Oil Company drilling Montgomery 1 at 943 feet encountered sulphur water with a slight show of oil. It will be shut off and the test deepened. Standard Oil Company of Louisiana is drilling the other well. This is Wyatt 1 and it is reported to have hit the same formation at 1030 feet.

Between these two tests and Memphis, J. J. Mundy and associates are arranging to drill a 3500-foot test with cable tools in Fayette County.

Record Blocks of Shale Land is Obtained

Denver, Colo. — The General Land Office last week granted to Standard Shale Products Company, controlled by the Continental Oil Company, patents on 9355 acres, the largest block of oil shale land which has ever passed to private control. The land is in Garfield County.

There was a constroversy at one time as to the adequacy of assessment work done as required by law, holders of the claims having performed group work. Secretary of the Interior Hubert Work made a decision which clarified the situation. The land was filed upon under the old placer mining laws in effect before enactment of the mineral leasing law of February 25, 1920. Applications were made for patents on 10,560 acres, but were allowed on 9355 acres embraced in 55 claims, proceedings being inaugurated on 14 claims on grounds that the development work was not sufficient and that some of the claims were not mineral. Fees paid by the company into the land office aggregated $23,000.

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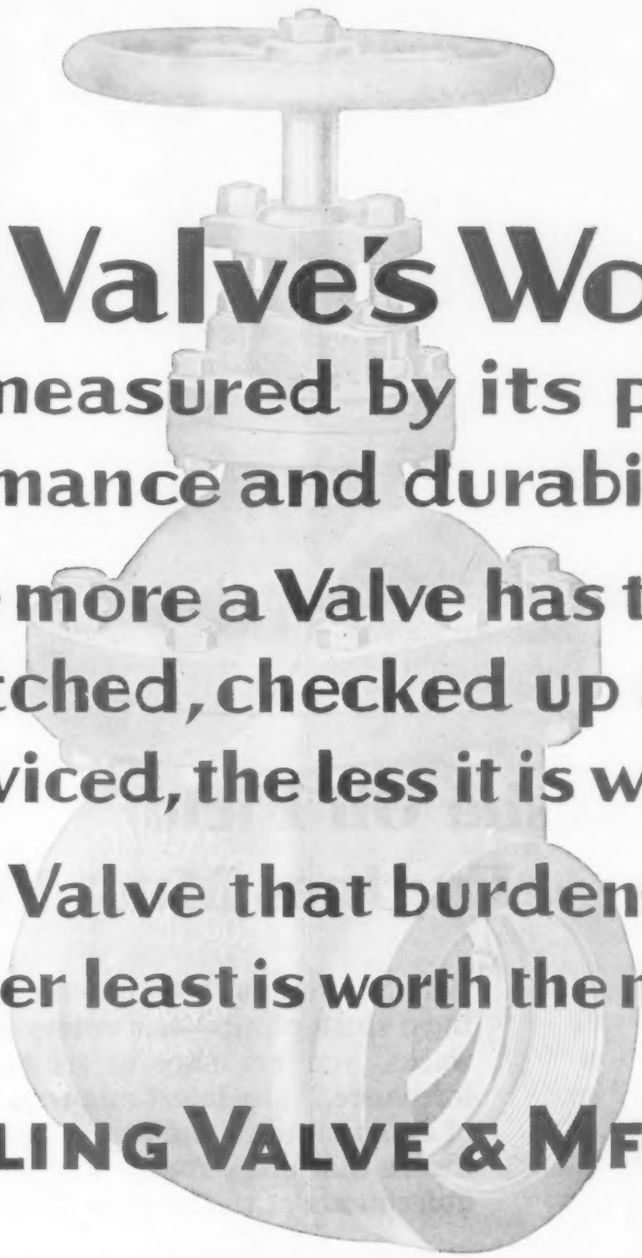

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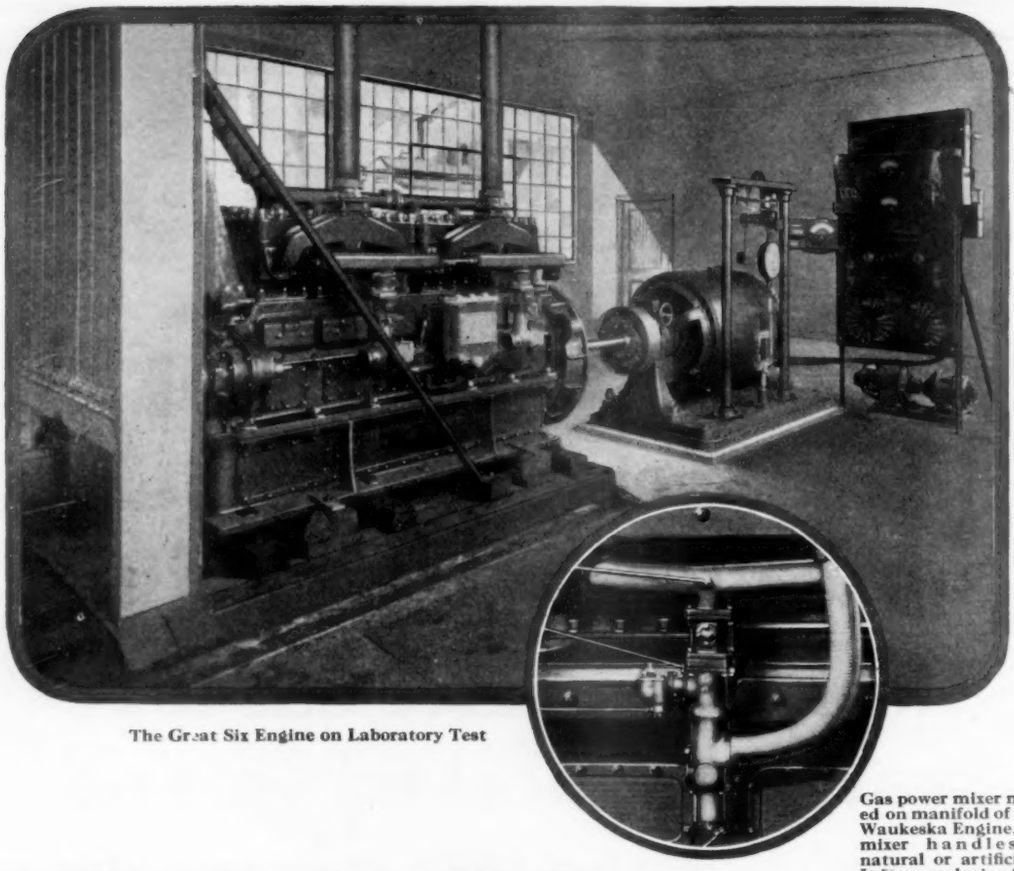

The Great Six Engine on Laboratory Test

Gas power mixer mounted on manifold of 120 hp. Waukeska Engine. This mixer handles still, natural or artificial gas. It is an exclusive feature obtainable only with Waukesha Ricardo Head Engines.

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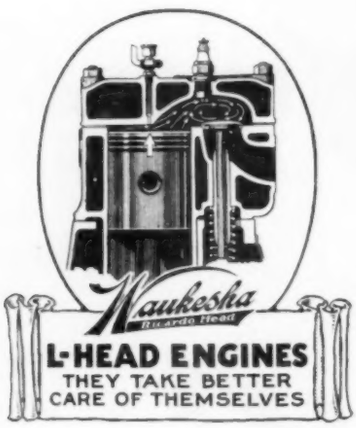

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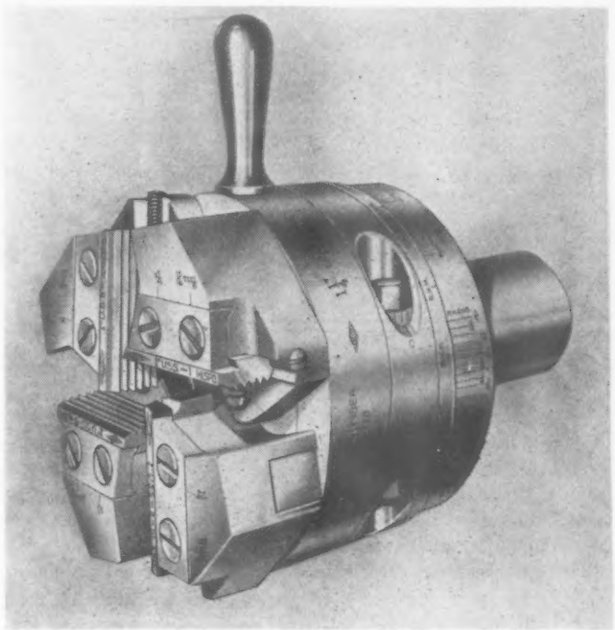


Landmatic Die Head

New Landmatic Die Head

LANDIS MACHINE COMPANY

Landis Machine Company, Waynesboro, Pennsylvania, manufacturers of thread cutting equipment, has placed on the market a new type Landmatic die head for application to turret lathes and hand operated screw machines. The new head will be known as the "F Type Landmatic."

The "F Type Landmatic" was developed to meet the demand for a die head which would produce full and correct threads when the stock "ran out" of line; such as is the case when the stock is slightly bent, when the turret and spindle are out of alignment or when the gripping mechanism grips the stock off center.

The head floats, or flexes, on the shank. This allows the head to center itself around the center of the stock and thereby produces a full thread even though the stock revolves eccentrically. The flexible condition is controlled by two heavy springs, which always return the head to the central position when it is not necessary to be off center.

The locking mechanism is entirely independent of the shank and floats with the head proper. The driving torque is transmitted directly from the shank to the head body and is also independent of the rest of the head. It is opened automatically by retarding the forward motion of the carriage and is closed by hand.

The adjusting worm is under proper turning tension at all times. This eliminates the necessity of locking it after each adjustment for size.

This F Type Landmatic Head employs the Landis long life chaser.

The Pacific Oil Tools Company, Los Angeles, early in March moved headquarters, offices and shops from 1928 East Seventh to 4439 Santa Fe Avenue.

Wesco Supply Company, Los Angeles, has removed offices and warehouse from 807 Mateo Street to 2006 East Seventh Street, Arthur J. Carr, well known in oil supply circles in various parts of the United States, is president of Wesco.

Petroleum and Coal—The Keys to The Future

(Published by Princeton University Press—Price $2.50)

"The future of oil, so far as one can prophesy, is mainly a matter of the future of scientific research and technical invention, acting under wise social control." This statement by the author, W. T. Thom, Jr., in his book, "Petroleum and Coal, the Keys to the Future," sums up in one-clear-cut sentence the important relation of science to the future of the oil industry. The author points out that it is impossible to state the reserves of petroleum in terms of so many barrels, because such figures when stripped of their qualifying text, appear to be more definite and accurate than the facts warrant.

This interesting book takes the reader back through the early ages of civilization and contrasts them with the present era of coal and oil. He also presents a comprehensive description of how these important natural resources were formed, how they occur, how they were discovered, produced and used, and the bearing that present reserves of petroleum and coal have upon future of civilization. In a brief but concise analysis of petroleum and coal resources of the world, the author describes in detail the present known productive and potential oil and coal areas. Many valuable facts are brought out in an interesting manner and the reader obtains a fresh viewpoint of the entire panorama of both petroleum and coal, synchronous with their importance to the future of civilization's industry and trade, in peace and in war.

OPEN SYRACUSE OFFICE

Clarence H. Buell, 404 S. Clinton Street, Syracuse, New York, is now a Novo distributor for the Novo Engine Company in the central part of New York State. The entire line of Novo equipment will be handled—pumps, hoists, draglines, engines, lighting units, etc.

AXELSONS TOUR EAST

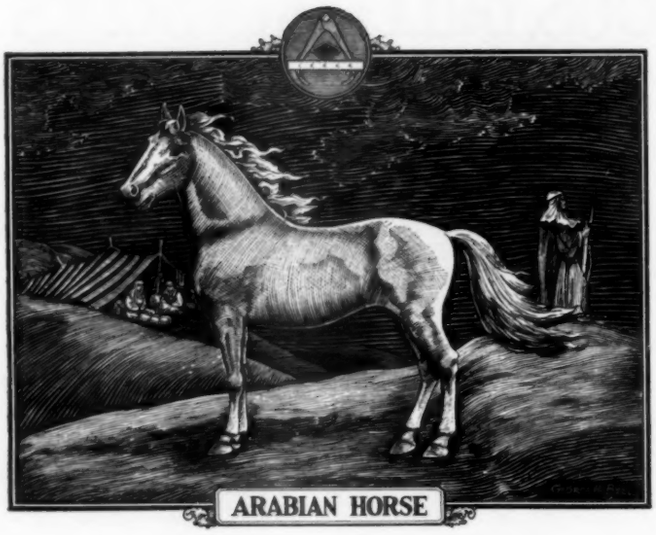
Leaving Los Angeles April 1, several officials of Axelson Machine Company are making an extensive visit through the East. Jule C. Axelson, president and Delbert F. Axelson, vice-president and general manager, accompanied by Fred A. Worthey, manager of the airplane engine division, Milton Laury, chief research engineer and Milton Parker will be in Detroit for a week, after which they will visit the St. Louis plant. J. C. and D. F. Axelson and Wm. Laury will then visit various oil fields in the interest of Axelson products and will be in Tulsa for several days. Axelson Machine Company is making several additions to its plant in Los Angeles, involving an expenditure of approximately $250,000, according to Clyde Ellwood, salse manager.

READING IRON COMPANY CHANGES

Effective March 15, 1929, Reading Iron Company established an office at 402 Mutual Building, Kansas City, Missouri. This office will be in charge of H. D. Pollard.

Effective April 1, John G. Cottle, who for a number of years was attached to the sales staff of the Reading Iron Company, Chicago office, will assume the duties of railroad sales representative in the Chicago and western territory. This position was held by H. L. Shepard, resigned.

O. L. McGinn has been engaged as salesman attached to the Reading Iron Company, Chicago office. Mr. McGinn's appointment is effective shortly after April 1.



QUALITY

A characteristic of the Arabian Horse and also of the products manufactured by The Garlock Packing Co., Palmyra, N.Y.

ARABIAN horses were originally obtained from the Libyan tribes of Northern Africa. By long and careful mating the superior type has been maintained through many centuries. The breeding and raising of the Arabian horse is closely supervised and controlled by the owners so as to obtain certain desirable qualities such as endurance, strength, intelligence, tractability and fine appearance.

Realizing that quality in commodities, as well as in domestic animals, is secured by years of close supervision of details, The Garlock Packing Company has continually striven in the past quarter of a century to build products whose body structures and treatments are basically right to meet the requirements of an economical and satisfactory packing service.

This fundamental characteristic of Garlock manufacturing processes has merited the descriptive name *Quality Controlled Packings* for their products.

Cooper and Bessemer Join in New Corporation

Mt. Vernon, Ohio.—Bringing together two of the oldest manufacturers of power machinery, a consolidation has been effected by the C. & G. Cooper Company and the Bessemer Gas Engine Company, the two companies now being combined in a new company, the Cooper-Bessemer Corporation. E. J. Fithian, president of the Bessemer Gas Engine Company, will be chairman of the board, and B. B. Williams, president of the C. & G. Cooper Company, will be president and general manager of the new corporation. The remaining officers will be chosen from the active executives of both companies.

There will be practically no change in the personnel of the sales and service organizations.

The C. & G. Cooper Company was established 96 years ago at Mt. Vernon, Ohio, by two Cooper brothers. The Bessemer Gas Engine Company was organized at Grove City, Pennsylvania, over 30 years ago.

Through the consolidation of the companies, it is expected to effect important engineering and manufacturing economies, as the two companies were tending to manufacture very similar lines of equipment and by combining interests they can reduce costs. The combined lines of engines and compressors of the two companies are extensive and complete.

The combined lines will mean standardized sizes of engines and compressors for every oil and gas field service. Engine users will be able to get a Cooper or Bessemer to meet their conditions exactly. The line will include small drilling and pumping engines, two or four cycle compressor engines, vertical or horizontal engines for general power purposes, Diesel oil engines for oil pipe line and electric power generation to the largest 1500 B.H.P. main line compressor station engines.

One order of MacClatchie Valve Inserts going to a California producer

The MacClatchie mud pump valve, manufactured by MacClatchie Manufacturing Company, Compton, California, is made from special alloy, giving it an extremely hard wearing service. The solid one-piece construction leaves nothing to jar loose. The inserts are made from the best of material.

Recently one well was drilled to 1700 feet in a Southern California field without changing the inserts in the pump valve. A number of these valves are being shipped into the Mid-Continent, mostly to the larger companies. The inserts stand extremely high pressures without unusual wear. Literature will be mailed upon request.

Is your card among these?

These piles of cards are individual requests for the new P & W Oil Country Gage catalog.

Here, at last, is the up-to-the-minute information on A. P. I. gages which should be in the hands of every responsible executive in the industry.

If you neglected to send for one we urge you to fill out the coupon below and mail it in immediately so you may be sure of getting one of the first edition.

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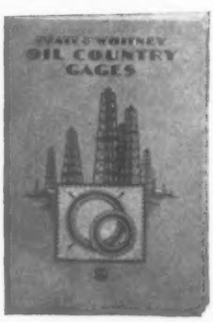

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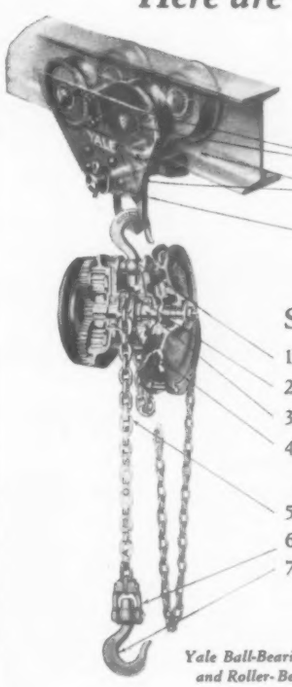

Yale Steel Plate Roller-Bearing Trolleys

1 Eight sets of Hardened and Ground Roller-Bearings support the four chilled tread trolley wheels.

2 Wrought Steel Plate Suspension Members, with bumpers, protect the wheel flanges and are connected at a single pivotal point by the steel equalizing pin.

3 All Yale Trolleys can be readily adjusted to four sizes of I-beam.

Yale Ball-Bearing Spur-Geared Chain Blocks

1 Drop-forged Top Safety Hook and Crosshead, designed to withstand shock and surge loads of several times their rated capacity.

2 Heavy Wrought Steel Suspension Plates connect the upper hook with the ball-bearings on which the load sheave rotates.

3 A massive One-piece Electric Steel Load Sheave, mounted on two ball-bearings, each carrying eighteen chrome vanadium steel balls.

4 Two sets of Large Chrome Vanadium Ball-Bearings support the massive steel load sheave and reduce friction where load pressure is greatest, making the Yale Ball-Bearing Spur-Geared Chain Block the most efficient, easiest to operate, and lowest in cost of maintenance.

5 Steel Load Chain, each link die-formed, electrically welded, heat-treated, and accurately gauged.

6 Drop-forged Detachable Shackle, simple to connect to any length of load chain by means of the drop-forged, heat-treated oval pin.

7 Steel Safety Hook, the "safety valve" of the Yale Block, is drop-forged from special steel.

Yale Ball-Bearing Chain Block and Roller-Bearing Trolley

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Squeaks from the Bull Wheel

Just Kidding John*

John R. Suman, of the Humble Oil & Refining Company, Houston, who has been very active in conservation and proration work for his company, is facing an over-production problem that is as serious to him as West Texas is to the oil business.

A few months ago John bought a "ranch" near Houston, and also paid for 21 goats which were on the ranch at the time. Despite a hard winter, John, when he went out to inspect his goats about five weeks ago, found that he had 46 goats. He went back 10 days later and found 10 more. Now John must put some kind of a proration or curtailment agreement into effect or buy more land to store his goats.

ED. NOTE.—A sub-editor suggests quotation marks around "kidding" in this head, but what John wants is quotations on goats.

"Nature," said the philosopher, "always makes compensations. If one eye loses sight, the other becomes stronger; if one loses the hearing of one ear, the other becomes more acute."

"I believe you're right," said an Irishman. "I've always noticed that when a man has one leg short, the other is longer."

May I count on your supporting me?

Are you running for office or do you want to marry my daughter?

Small Brother: I saw you kiss sis in your Ford roadster last night.

S-sh! Here's a quarter.

And here's 10 cents change. I only charge fellows with Packards a quarter.

And what is a stork, mother?

A bird of chance, my dear.

Jimmie giggled when the teacher read the story of the man who swam across the Tiber three times before breakfast.

"You do not doubt that a trained swimmer could do that, do you?"

"No, sir," answered Jimmie, "but I wonder why he did not make it four and get back to the side where his clothes were!"

"Doesn't that little boy swear terribly?"

"Yes'm; he sure does. He don't put no expression in it at all."

A Scotchman had been told by his doctor that he had a floating kidney. He was much disturbed by the diagnosis and went to the minister of his church with a request for the prayers of the congregation.

"I don't know," said the minister dubiously, "I'm afraid that the the mention of a floating kidney the congregation would laugh."

"I don't see why they would," replied the sufferer. "It was only last Sabbath you prayed for loose livers."

"I say, mama," asked little Tommy, "do fairy tales always begin with 'Once upon a time?'"

"No, dear; not always," replied mama. "They sometimes begin with 'My love, I have been detained at the office again tonight.'"

"I'se for a five-day week. How 'bout you, Sas?"

"Man, I'se for a five-day week-end."

"Look here, Wilkins, why don't you pay me that 10 dollars you owe me?"

"It's your own fault, old man. Last time I paid you some money I owned you, you said you'd forgotten all about it."

Don't you realize you're facing the electric chair?

I don't mind facing it; it's sitting in it I don't like.

"Farm products cost more than they used to."

"Yes," replied the farmer. "When a farmer is supposed to know the botanical name of what he's raisin' an' the entomological name of the insect that eats it, an' the pharmaceutical name of the chemical that will kill it, somebody's got to pay."

Jones was relating his narrow escape from drowning to some friends.

"As I went down for the third time," he said, "all the past events of my life flashed before my eyes."

"Is that so?" asked one of his listeners. "Well, did you see yourself borrowing that fiver you've owed me for six months?"

"You are Miss Dimple Simple, queen of the screen and empress of the boards?"

"I am."

"Have you any photographs of yourself in character?"

"Here I am in a beauty lotion, and again in a hay fever cure."

Marriage takes all the poetry out of a fellow.

Is that so? Then it can't be a failure.

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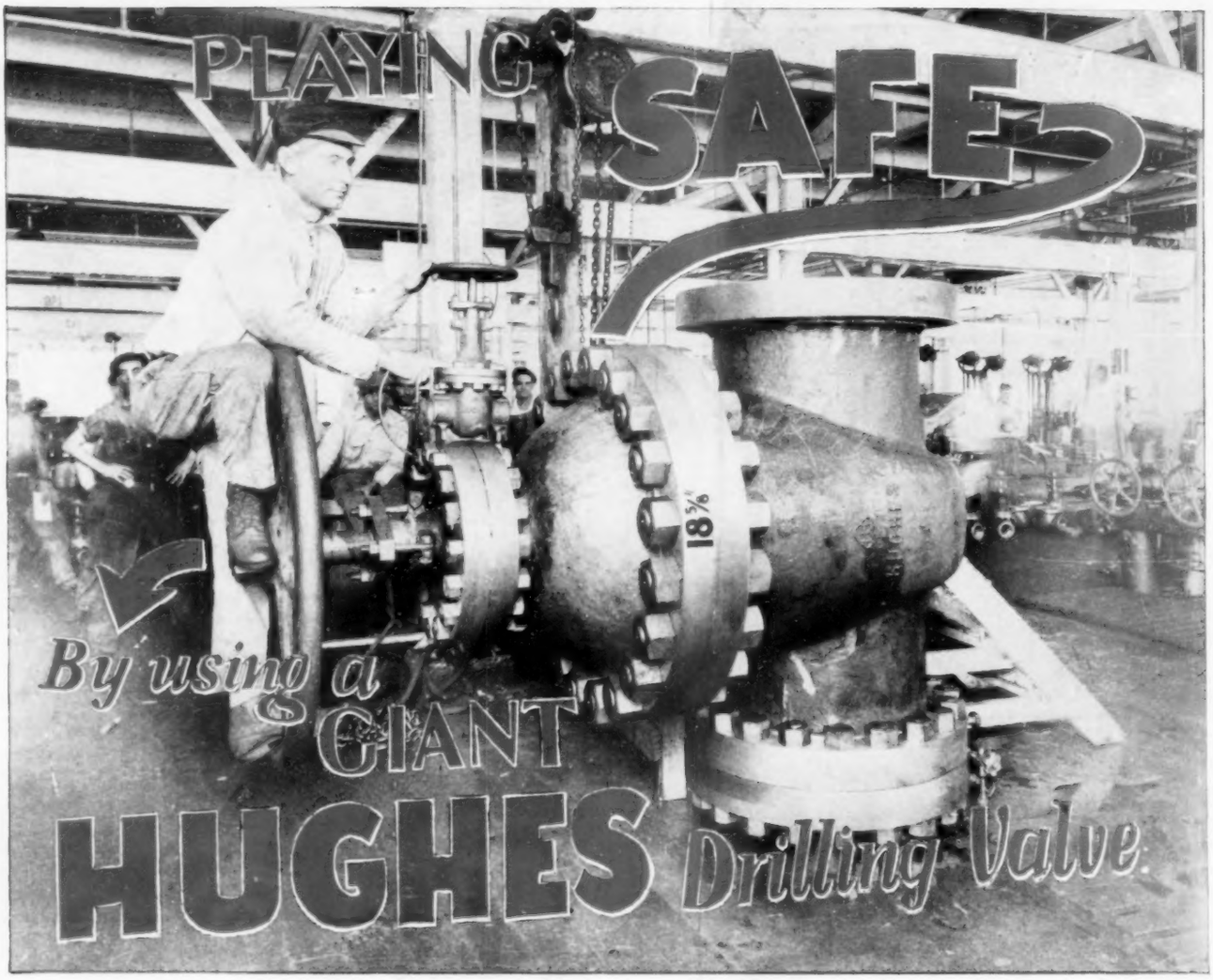

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